Christine O. Gregoire
ATTORNEY GENERAL OF WASHINGTON
1125 Washington Street SE • PO Box 40100 • Olympia WA 98504-0100

MEMORANDUM

May 2, 2000

TO: Alan Fiksdal, Manager EFSEC

FROM: Mary C. Barrett
Senior Asst. Attorney General
Counsel for the Environment

SUBJECT: Sumas Energy 2 Energy Generating Facility DEIS COMMENTS

Thank you for the opportunity to respond and for the EFSEC's decision to grant the public the extended time to digest the information contained in the DEIS. I have been in contact with the statutory and proposed intervenors. I will not reiterate their comments here. Suffice to add, that I concur with the comments and believe the EIS would benefit from the EFSEC's further consideration and analysis of the issues raised by them.

As CFE, I independently review the environmental impacts and strive to advocate for an appropriate balance between the environmental costs and the economic benefits to the applicant, the community and the citizens of Washington state. I trust that EFSEC shares this prospective as it reviews the construction and operation of the proposed SE2 facility and I encourage EFSEC to be creative and mindful of the obligations set forth in WAC 463-47-110. To that end, I add the following as "practicable means" to achieve the state's overriding policy objectives as EFSEC continues its impact analysis.

Diesel Fuel Tank: Mitigation proposed in the DEIS differs from the pre-filed testimony of the applicant. I support a containment field 1 1/2 times the capacity of the tank contents and suggest additional safeguards to protect the aquifer and safety of all.
I am attaching a copy of the Order, which contains the conditions imposed by Kootenai County pertaining to the B&N fuel depot. See paragraphs II 2.03; 2.15; 2.16; 2.19; and the Order of Decision paragraph VII for provisions that are equally relevant to the SE2 facility. Note the redundancies and the contingency planning such as the bond, FTE for monitoring to detect at the earliest possible time, shut down until the source is found and rectified, and the agreement to provide potable water in the event of contamination.

These conditions provide the safeguards necessary to ensure that human error, natural conditions and/or design defects have the requisite levels of redundancy as a fail-safe. You will note that the conditions exceed both Idaho and Washington standards because these standards are not the prudent choice given the potential damage a spill could exact. I presume this is the rationale for the DEIS mitigation requirement of 1 1/2 times the spill containment. These conditions are environmentally sound and an economically viable way to balance the competing interests. 1

IN THE ALTERNATIVE, since it is the dual fuel proposal contained in the revised application filed 1/00, which is the basis for the need to provide these additional safeguards for the aquifer, elimination of the possible 15 days of diesel fuel is a way to ensure no impact. The applicant has the choice to make space available in the gas pipeline for other consumers by reducing its use or

shutting down during "cold snaps". It appears to be an economic choice rather than the unlikely involuntary shut down imposed by a governmental entity. The EFSEC analysis should focus on which scenario best serves the state's policy objectives e.g. make the gas available for others use and allow dual fuel with its added environmental impacts; allow for the possibility of shut-down or allow SE2 to operate using gas during the "up to 15 days" risking how this use would impact other customers access to natural gas. 1

Nitrate contamination of ground water: A strategy for allocating the risk associated with this possibility needs to be addressed. At a minimum, the applicant must bear the costs of monitoring, providing potable water on the short term and paying for either the technology upgrades to treat the water so it is potable or acquition from another on the long term, whichever serve the economic and environmental impacts best. 2

Impact of allocating available water rights to SE2 on neighboring wells: It is clear that SE2 has no right to impair a senior water right. Nor should it be allowed to impact another's right without taking responsibility to ensure that the impact is identified early and properly addressed. To that end, there does not appear to be adequate testing to know how the increased pumping will impact neighboring wells. Prior to operation, this impact must be ascertained and SE2 accept responsibility to bear the costs for ensuring that there is no impact. This should include paying for the study by an independent entity and doing whatever is necessary so that neighbors do not pay the price for SE2's use of the allocated water. This may include digging deeper wells, improving the pumping capacity, hooking neighbors up to city water or other creative alternatives to ensure the status quo. 3

Capacity to transfer energy generated: The DEIS fails to analyze whether the grid has adequate capacity to handle the increased load that would result if SE2 begins to operate. This analysis is necessary whether the energy is wheeled north and then re-enters the U.S.A. indirectly or if the routes, suggested as alternatives, connect with the grid directly. Prior to construction, of the facility, there should be a completed Transmission Integration study so it is known whether the issues of such as thermal loading; incremental loading and intertie capacity can be addressed such that this facility can meet any identified energy need. 4

Air emissions: The DEIS should require the development of a monitoring system to ensure the levels are consistent with whatever standards are required under any site certification. 5

Greenhouse gases: While Washington does not currently set standards, Oregon does. BACT makes compliance with these standards possible. SE2 can and should meet these standards. See WAC 463-47-110. The adequacy of the greenhouse gas offset strategy is addressed by others. 6

Wastewater treatment: The Canadian officials have made it clear that they do not intend to allow treatment of SE2 wastewater at the Abbottsford Facility as evidenced by the recent votes by the City of Abbottsford and the Fraser Valley Regional District Council. This means that the original proposal for wastewater treatment is no longer viable. Before going forward with this DEIS, a new proposal needs to be presented. The possibilities for treatment include trucking the wastewater; applicant treating it with no discharge or reducing the discharge so the wastewater can be either addressed within the contract limits the City of Sumas has with Abbotsford currently; or developing a strategy whereby the City could treat the wastewater independent of the Abbotsford facility. In the event of the latter option, the cancellation of the City of Sumas' NPDS permit also needs to be analyzed. In sum, wastewater treatment and the environmental impact of the technology needs to be assessed. Until we know what the new proposal is, this is pure speculation and not suitable for the FEIS. I suggest we wait to conclude the EIS until this issue can be adequately addressed. 7

BACT- TURBINE GE advanced technology H system: Attached is information on the latest GE turbine, which is now available. From the data, it appears to use less fuel, operate at a higher efficiency and reduces air emissions further. The current proposal is based on an older model, which do not meet these higher environmental goals. This turbine appears to be the latest "state of the art" and should either be used or environmental impacts of the existing proposal should be matched by other technology, whichever mode is the most economically violable. The data estimates that this turbine will save $20 million in fuel costs alone over the expected life of the engine. 8

If you have any questions or if I can be of further assistance, please contact me at (360) 664-2475 or via e-mail at maryb@atg.wa.gov.

MCB:jb

Attachments:

cc: Karen McGaffey

BEFORE THE COUNTY COMMISSIONERS OF KOOTENAI COUNTY, IDAHO

IN THE MATTER OF THE APPLICATION OF BURLINGTON NORTHERN & SANTA FE RAILROAD APPLICATION FOR A CONDITIONAL USE PERMIT TO CONSTRUCT A PUBLIC UTILITIES COMPLEX FACILITY AND ABOVE GROUND BULK STORAGE TANKS	))))))	CASE NO. C-999-99 FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF DECISION

I COURSE OF PROCEEDINGS

1.01 On November 25, 1997, Melinda Jones of Hanson Wilson, on behalf of The Burlington Northern and Santa Fe Railway Company, made application for a Conditional Use Permit to construct and operate the expanded Hauser Terminal. In a letter dated June 19, 1998, Kenny Hancock of Hanson Wilson stated they were withdrawing the pending application (Case No. C-953-97) to further consider design alternatives with respect to the proposed fueling facility.

1.02 On July 16, 1999, Kelly Duryea, on behalf of The Burlington Northern and Santa Fe Railway Company, applied for two Conditional Use Permits, one for the above-ground storage of more than 20,000 gallons of fuel and one for a public utilities complex facility for the construction and operation of a locomotive fueling facility at the Hauser Terminal.

1.03 The Planning Department issued a notice of Public Hearing on this application (C-999-99) to be held on November 15, 1999. Public notice requirements set forth in *Idaho Code*, Chapter 65, Local Planning Act, have been met. On October 12, 1999, an Area of City Impact notice was mailed to the City of Rathdrum, Idaho; on October 29, 1999, notice was published in the *Coeur d'Alene Press*; and on November 8, 1999, notice was posted on the site. It is the Applicant's responsibility to notify all property owners within 300 feet of the project site. Based on the signed affidavit, the requirements for public notification were met.

1.04 Files, exhibits, and the staff report relative to this application are available for review in the Kootenai County Planning Department and were available for review at the hearing.

1.05 A public hearing was held before a hearing examiner on November 15, 1999. The hearing was continued to November 16, 1999, and then to November 17, 1999, when it was concluded.

1.06 The hearing examiner, by her Recommendation dated December 29, 1999, filed January 3, 2000, recommended to the Board of County Commissioners that the application be denied.

1.07 The Applicant requested a hearing before the Board of County Commissioners. Although this hearing was originally scheduled for February 14, 2000, the Board of County Commissioners rescheduled the hearing and heard this request at a public hearing on February 16, 2000. Notice of Public Hearing was issued by the Planning Department for the February 14, 2000 date and an amended Notice of Public Hearing was issued by the Planning Department. Public notice requirements set forth in *Idaho Code*, Chapter 65, Local Planning Act, have been met. On January 28, 2000, notice

was published in the *Coeur d'Alene Press* for the February 14, 200 hearing date. The Applicant notified all property owners within 300 feet of the project site. On February 2, 2000, notice was published in the *Coeur d'Alene Press*, and on February 9, 2000, notice was posted on the site for the February 16, 2000 hearing date. The Planning Department notified all property owners within 300 feet of the project site. The requirements for public notification have been met.

1.08 The Board of County Commissioners held a public hearing on February 16, 2000, which carried over to February 17, 2000 and then to February 18, 2000 when it was concluded.

1.09 Public testimony was heard from approximately 131 persons during the public hearing; approximately 54 persons spoke in favor of the project, 76 persons spoke against the project, and one person spoke who was neutral. There were 469 comment sheets submitted in total, 181 of these contained written comments by persons who did not testify.

1.10 The Board of County Commissioners received all of the testimony and information relative to the request. On February 18, 2000, the Board of County Commissioners voted unanimously to close the public testimony and take Case No. C-999-99 under advisement. Deliberations were ultimately scheduled for March 6, 2000.

1.11 Proper notice was given of the deliberations date. On February 25, 2000, notice was published in the *Coeur d'Alene Press* for the March 6, 2000 deliberations hearing. The planning department notified all adjacent property owners on February 23, 2000. The requirements for public notification have been met. At their Deliberations on March 6, 2000, with three commissioners present, and upon review of all files, exhibits, and testimony of record regarding the application, the Board of County Commissioners approved the application in a two to one vote. The Board further directed the preparation of an Order of Decision with the following Findings of Fact and Conclusions of Law in support of their decision.

1.12 A complete record of the hearing is on file in the Kootenai County Planning Department.

II FINDINGS OF FACT

2.01 **Applicant.** Kelly Duryea, Burlington Northern and Santa Fe Railway Company., 4510 East Wisconsin, Spokane, WA, 99212 **(Exhibit A-1, Application).**

2.02 **Property Owner.** The Burlington Northern and Santa Fe Railway Company ("BNSF").

2.03 **Proposal.** The Applicant requested approval of two Conditional Use Permits for the above-ground bulk storage of more than 20,000 gallons of petroleum products and for the construction of a Public Utility Complex Facility (hereinafter, both the above-ground bulk storage of more than 20,000 gallons of petroleum products and the Public Utility Complex Facility will be referred to as the "Facility"), which will allow the Applicant to install the necessary tracks, buildings, and related infrastructure for the development of the property as a Main Line Fueling Facility for the BNSF locomotives which utilize the main rail line. The Facility includes all tracks, buildings, infrastructure, and storage facilities for lubricants and related items necessary for the operation of the Facility. (**Exhibit A-5, narrative, Exhibit A-6, site plan**).

Specifically, the Applicant proposed to construct the following:

Tank Farm. The tank farm to consist of:

* Two 250,000 gallon, above ground fuel storage tanks to hold diesel fuel.
* One 20,000 gallon, above ground bulk lube oil storage tank.
* One 27,000 gallon, above ground waste oil storage tank.
* One 210,000 gallon, above ground industrial wastewater storage tank.

* The tank farm will be enclosed with a reinforced concrete floor coated with an industrial quality sealant, with reinforced concrete walls approximately 6 feet tall. There will be a containment volume of 130% of the volume of the maximum volume of the two diesel tanks and the lube oil tank. This enclosure will serve as secondary containment of any products from the tanks.
* The storage tanks will be constructed with double bottoms, with leak detection in the interstitial space between the two bottoms.
* Multiple high liquid level alarms will be provided to activate a visual alarm and sound an audible alarm, shut down pumps, and automatic valves, which close the fill pipes before a tank could be overfilled.
* Two separate 60-mil high-density polyethylene (HDPE) liners to provide containment of any leak, which might get through the sealed concrete.
* Above ground piping will be placed over sealed concrete. All below ground piping will be double walled with leak detection.

Fueling Facility. The Fueling Facility to consist of:

* A covered four-track fueling bay.
* From the fueling platform, groups of up to 5 locomotives per track will be refueled with diesel, have lubricating oil topped off, water tanks filled, and have traction sand resupplied.
* The fueling platform will be placed completely under a roof, and the walls will extend approximately 1/3 of the way down from the canopy. The roof will provide protection from the rain and snow, eliminating most of the stormwater that would enter the fueling platform. The sidewalls will provide protection to the workers from the elements, and reduce the noise level from outside of the Facility.
* The fueling bays will be constructed of sealed, reinforced concrete with two separate 60-mil high-density polyethylene (HDPE) liners to provide containment of any leak which might get through the sealed concrete.
* Fueling nozzles will utilize a vacuum activated automatic shut-off mechanism to prevent overfilling of tanks.
* A programmable logic controller will control the fueling system. The Controller will utilize a system of safeties, automatic equipment shutdowns, and alarms to shut down pumps, close valves, sound alarms, etc., in case of an equipment malfunction.
* Any liquids spilled on the fueling platform will be collected in collection trenches and conveyed to a waste separation and treatment system. Waste oil products will be pumped to a waste oil tank for recycling. Wastewater will then be pumped to the wastewater tank, which will hold the water until the water is hauled off-site by rail for disposal at an appropriate Facility.

Loading/Unloading Platform. The loading/unloading platform to consist of:

* A platform that can accommodate up to 18 tank cars at a time to unload diesel fuel or lube oil from the tank cars to the on-site storage tanks. The platform will also be used to load wastewater and waste oil generated at the site onto tank cars for shipment to proper facilities for disposal.
* Construction of the loading platform will be similar to the fueling Facility using sealed, reinforced concrete, underlain with two 60-mil HDPE liners. The platform will be configured so that the sealed concrete will provide secondary containment of any fluid, which could get onto the platform. Any spilled fluids are collected and pumped to the separation and treatment systems.

Miscellaneous. Other features of the proposal include:

* An administration building
* Pump complex building
* Sand storage silo
* Two "bad order" tracks, one of which will have an inspection pit for inspecting locomotives. Locomotives, which are taken out of service, will be taken to an appropriate repair Facility for repairs.

2.04 **Legal Description.** This property is described as portions of Sections 2, 9, 10, 11, 15, and 16, Township 51 North, Range 5 West, Boise Meridian, Idaho, consisting of approximately 382 acres of property owned by the Railroad, within which the Facility will be contained. The individual parcel numbers for the land subject to this request are:

Parcel Number	Section	Township	Range	Acreage
51N05W-02-6950 (formerly known as: R-0000-002-6950)				
	Sec. 2	Twnp. 51 North	Rng 5 West	8.36 ac.
51N05W-02-4800	Sec. 2	Twnp. 51 North	Rng. 5 West	68.24 ac.
0-2920-09-016-AA	Sec. 9	Twnp. 51 North	Rng. 5 West	5.61 ac.
0-2900-10-032-AA	Sec. 10	Twnp. 51 North	Rng. 5 West	46.32 ac.
51N05W-10-8150	Sec. 10	Twnp. 51 North	Rng. 5 West	62.39 ac.
0-2900-10-005-AA	Sec. 10	Twnp. 51 North	Rng. 5 West	63.48 ac.
0-2900-10-011-AB	Sec. 10	Twnp. 51 North	Rng. 5 West	29.04 ac.
0-2900-10-037-AA	Sec. 10	Twnp. 51 North	Rng. 5 West	2.85 ac.
51N05W-11-3220	Sec. 11	Twnp. 51 North	Rng. 5 West	20.08 ac.
51N05W-15-3150	Sec. 15	Twnp. 51 North	Rng. 5 West	7.15 ac.
51N05W-15-3400	Sec. 15	Twnp. 51 North	Rng. 5 West	10.00 ac.
51N05W-15-3750	Sec. 15	Twnp. 51 North	Rng. 5 West	10.00 ac.
51N05W-16-1500	Sec. 16	Twnp. 51 North	Rng. 5 West	32.97 ac.
51N05W-16-6100	Sec. 16	Twnp. 51 North	Rng. 5 West	15.85 ac.
		Total		382.34 ac.

2.05 **Location.** The Facility is proposed to be located on the south side of the main rail lines, which are located just south of State Highway 53 and north of Burlington Road. The affected area is west of Greensferry Road and east of McGuire Road.

2.06 **Zoning.** This site is located in the Industrial zone. The zoning surrounding the parcels includes Agriculture, Agriculture Suburban, Commercial, and Rural. **(Exhibit S-37, zoning map).** In the Industrial zone, the Zoning Ordinance requires approval of Conditional Use Permits for a Public Utility Complex Facility (Section 2.02, definition for Public Utility Complex Facility, and Section 11.14 (F)) and for above ground storage of more than 20,000 gallons of petroleum products (Section 11.14 (E)). Minimum Conditional Use Standards for these uses are in Sections 33.22 and 33.21, respectively.

2.07 **Physical Characteristics.** The project site is located immediately south and southwest, and adjacent to the existing Burlington Northern and Santa Fe Railroad right-of-way. The site is over the Rathdrum Prairie Aquifer. The topography of the site is generally level to undulating, with soils in the Avonville-Garrison-McGuire soil series. The soils formed in glacial outwash under a loess and volcanic ash mantle and are well drained to somewhat excessively drained.

The Applicant will incorporate several groundwater protection measures for the Facility to protect the aquifer. These include the physical features of the Facility described above, and methods of operation of the Facility described more fully below and incorporated into the Conditions of Approval. The Applicant's professional studies on groundwater flow simulation in the vicinity of the site, subsurface modeling evaluating hypothetical diesel release scenarios, and evaluation of drinking water risks in the event of groundwater contamination by diesel fuel reveal minimal, if any, risk to public or private drinking water supplies. **(Exhibit A-37, reports).** The Idaho Division of Environmental Quality has reviewed these reports, offered comments **(Exhibit PA-25, Division of Environmental Quality Nov. 2, 1999 letter),** and has acknowledged the accuracy of the modeling as reasonably simulating the potential effects of catastrophic spills. **(Exhibit H-1011, Division of Environmental Quality Nov. 16, 1999 letter).**

2.08 **Surrounding Land Use.** An aerial photograph shows the current land uses **(Exhibit A-23, aerial photograph).** Currently the parcel of property on which the Facility will be constructed is used by the Railroad for its mainline transportation and a switching facility. The specific construction site of the Facility itself is currently vacant.

The closest residences to the Facility are 600-700 feet to the north and west, which is across the switching Facility and Highway 53 from the project. Topography and the existing switching Facility obscure the view of the Facility from these residences. The closest residence with a relatively clear view of the Facility is approximately 800-1000 feet to the east, and south across Burlington Road. Most of the land on to the south and east of the Facility is vacant or used for agriculture. A golf course is currently being constructed adjacent to the rail lines between Chase and McGuire Roads to the southwest of the Facility. On the north side of Highway 53 there is a mix of commercial, industrial, and residential uses.

2.09 **Comprehensive Plan Map.** The future land use map in the Comprehensive Plan designates the area Industrial, with an Agricultural designation to the south of the site, and Commercial and Rural Residential designations across Highway 53.

2.10 **Area of City Impact.** The site is within the Area of City Impact for Rathdrum, Idaho. The Rathdrum corporate boundary runs along Burlington Road between Greensferry and Idaho Roads.

2.11 **Transportation.** The Facility will be accessed from a two-lane, paved road extending from Burlington Road, which runs between Chase Road on the west to Greensferry Road on the east. At each end of the railroad's property there is an at-grade crossing, to the east on Greensferry Road, and to the west on McGuire Road. The crossing at McGuire was recently upgraded to improve safety. The Post Falls Highway District maintains Burlington, Greensferry, Chase and McGuire Roads.

The Post Falls Highway District, Idaho Transportation Department, and the City of Rathdrum have collectively decided what measures will be appropriate to mitigate the Facility's impact to the road system in the County. **(Exhibit PA-4, May 27, 1998 agreement)** These improvements include an underpass at the Greensferry Road crossing, and new turn bays on Highway 53 at Greensferry. The Post Falls Highway District has confirmed in an updated letter that the agreement is still current. **(Exhibit PA-3, July 22, 1999 letter)** The Highway District has provided additional information in its September 23, 1999 letter. **(Exhibit PA-17)**

In the broader, regional context, the addition of this Facility could have a significant positive impact in reducing time delays and congestion in areas where locomotives are currently fueled, according to the Economic Impact Study submitted by the Applicant. **(Exhibit A-32, Economic Impact Study)**

2.12 **Water Source.** The Applicant will hook onto the East Greenacres Irrigation District's system for water at the site. Water is needed for domestic use and for the fire suppression systems. In a letter dated August 27, 1999, the District indicates that they have the capacity, willingness and intent to serve the portion of the site that is within their District. **(Exhibit PA-24)**

The construction of new mainlines will be required and therefore plans and specifications will need to be submitted to the District for approval. The Idaho Division of Environmental Quality will also require plans for their review prior to extension of the water system. **(Exhibits PA-7 and PA-18, letters)**

2.13 **Wastewater Disposal.** Domestic wastewater disposal for the Administration Building at the site will be handled by a standard subsurface septic tank and drainfield. According to the Applicant, there will typically be no unloading of sewage from the toilets on the locomotives at this site. This waste will be pumped into an appropriate service vehicle and transported to an approved disposal facility on the rare occasions when necessary.

Non-domestic wastewater will be generated at the site, primarily from stormwater that is collected on the sealed concrete loading and fueling platforms. Panhandle Health District regulations preclude the discharge of non-domestic wastewater at the site. This wastewater will be collected, run through an oil/water separator, stored it in a 210,000-gallon tank, and then hauled to an appropriate treatment facility.

The Panhandle Health District has regulatory authority over the disposal of domestic and non-domestic wastewater and their approval will be required prior to issuance of building permits at the site. **(Exhibit PA-6, letter)**

2.14 **Critical Materials.** Storage of petroleum products and other critical materials over the Rathdrum Prairie Aquifer is subject to the Panhandle Health District's Critical Materials Regulation. **(Exhibit PA-6)** Secondary containment of critical materials is required under this regulation.

2.15 **Groundwater Protection.** The Idaho Division of Environmental Quality states in their October 6, 1999, letter **(Exhibit PA-18)**, that in accordance with the Idaho Ground Water Quality Rule, the Division of Environmental Quality will need to review the plans and specifications for the Facility to ensure that the necessary level of groundwater protection is provided. The Division of Environmental Quality's letter also indicates that the Division of Environmental Quality has an interest in employee training at the site, in reviewing the Facility's comprehensive inventory reconciliation plan and their environmental audit program.

Numerous safeguards to protect the aquifer from spills or leaks will be installed or provided at the Facility. In addition to the secondary containment required by Panhandle Health District regulations, two 60-mil HDPE liners will be placed under the tank farm, loading/unloading platform, and fueling platform.

The Applicant will provide a $5 million environmental protection bond for the Facility, which is incorporated into the Conditions of Approval.

2.16 **Air Quality.** The Division of Environmental Quality has issued a Category I Exemption from Permit to Construct, due to the limited air emissions from the project. **(Exhibit PA 31, December 22, 1999 Division of Environmental Quality letter).** Though not required by the Division of Environmental Quality, a carbon adsorption vapor recovery system for the diesel tanks will be included, to reduce the release of vapors into the atmosphere.

2.17 **Sound and Visual Barrier.** The Applicant has constructed a berm and vegetative barrier along a portion of the site to make the site less conspicuous. Trees that have died will be replaced and maintained. The topography and other features of the site are generally favorable to reducing the visual impact of the site. The requirements of Article 17, Design Standards of the Zoning Ordinance are imposed as a condition of approval to further enhance the appearance of this Facility. Staff will review construction drawings **(Exhibit A-24, sheet C-22)** for compliance with Article 17 at the building permit stage.

The buildings over the loading/unloading platform and over the fueling platform were primarily included to reduce the amount of stormwater that falls onto the sealed concrete. An additional benefit of these structures will be noise attenuation for locomotives that are being refueled. Studies on noise, light, and vibration from the Facility reflect minimal impacts on adjacent properties which fall well within the legal limits. **(Exhibit A-42)**

2.18 **Noxious Weeds.** According to the County Noxious Weed Program staff, it is likely that Spotted Knapweed, Leafy Spurge, and Hawkweed are noxious weeds present on the proposed site. These weeds will be controlled through the correct application of herbicides.

2.19 **Fire Protection.** The project site is located within the jurisdiction of the Rathdrum Rural Fire District. In a letter dated August 31, 1999, Wayne J. Nowacki, Chief, stated that the Facility will meet the minimum standards required by the District. Additionally, BNSF will contribute $200,000 toward the purchase of a new fire fighting apparatus. **(Exhibit PA-8, letter)**

An Aqueous Film Forming Foam (AFFF) fire protection system will be utilized for the Facility. The diesel storage tanks will be constructed with sub-surface foam injection and perimeter injection systems. In addition, AFFF monitor nozzles will be located around the tank farm.

2.20 **Site Visits.** Staff has been to the Hauser site on several occasions, most recently in October 1999. In addition, on October 28, 1999, staff visited a BNSF refueling facility in Commerce, CA, which is similar to the Facility being proposed for the Hauser site. Pictures taken at the Commerce facility are in the file. **(Exhibit S-28, pictures)**

2.21 **Board of County Commissioners Public Hearing.** During the three days of public hearing, significant written and oral testimony was presented. The following points were raised at or made part of the record for the public hearing:

2.21.1 **Economic Issues**

A. Speakers in opposition raised the following points concerning economic issues:
   * There would be no significant economic benefit to the local economy. 50 jobs, $739.00 in taxes, and a new firetruck were not enough.
   * Dr. Powers report indicated there would be less economic benefit to Kootenai County then represented by BNSF and that any economic benefit realized would be inconsequential.

B. Speakers in favor raised the following points concerning economic issues:
   * There will be approximately $29 million in increased income and 867 more jobs to the Coeur d'Alene/Spokane region as a result of the Facility construction alone. Continuing operations will result in $5.2 million in additional income and 131 more jobs to the area. The net benefit to the society as a whole from this project will be approximately $44 million. Local customers of BNSF will benefit from the decrease in costs and improved services that will result from the operation of this Facility. 50 jobs will be created at an average salary of $50,050.00 per year with benefits. **(A-32).**
   * BNSF will participate in the Rathdrum Downtown Redevelopment Project. **(A-26)**
   * This project will potentially reduce problems with rail capacity in the Seattle corridor. **(A-36).**
   * The Facility will allow greater accessibility to grain cars and will increase the efficiency in moving grain shipments. This is vitally important to agricultural producers in the Pacific Northwest. **(PA-28).**
   * BNSF will contribute $200,000 to the Rathdrum Fire District for the purchase of new firefighting apparatus. This will benefit all residents of that district. **(PA-8).**
   * David Godbout, Dept. of Commerce, stated that this project would be good for jobs and for the expansion of local businesses.
   * Ken Dunham, on behalf of the Inland General Contractors' Association and the Spokane Area Chamber of Commerce endorsed this project.

* Katie Brodie, on behalf of Idaho Forest Industries stated that this project would provide increased value to the timber industry.
* Joel Blalock, Potlatch Transportation Manager, noted that the Facility will allow for increased efficiency of transporting goods, will increase the number of jobs available in the area, and will benefit Potlatch.
* Ned Tower, of Hecla Mining, stated that the Facility would benefit the economy and provide an efficient and reliable transportation system that is essential to the economic growth in this community.
* Howard Tauge, of J.R. Simplot, noted that the increased savings this project will allow to BNSF would in turn be passed on to the local companies.
* Bob Potter spoke on behalf of Jobs Plus. He indicated that he had visited the California facility and found it to be a superbly engineered, sound project. He felt that allowing the Facility here will provide a benefit to industry and businesses in the community.
* Dean Haagenson spoke on behalf of Contractors Northwest, the Inland Pacific Chapter of Associated Builders and Contractors, and the IACI. He stated that allowing this project will not only provide jobs in the area, but will also avoid the detriment to businesses and development that would occur were the project to be denied.
* Dr. John M. Schleede, Dean of the College of Business Administration at Central Michigan University (formerly Dean of College of Business and Public Administrator at Eastern Washington University) thoroughly researched the economic impact of the Facility. His research led to the conclusion that a $29 million benefit from the construction alone would derive. Dr. Schleede indicates the flaws in Dr. Power's critique. (Ex. B-1001)

C. The Board of County Commissioners has found in favor of the Applicant because:
* The Facility will provide a positive economic impact to the Spokane/Coeur d'Alene region by providing increased income to the area, more jobs, many of which are high-paying positions, and by decreasing costs and increasing the quality of services provided to local businesses.
* The Facility will provide the opportunity for more and diversified employment in the area.
* The evidence provided by the various proponents of the project concerning the potential economic benefits is more persuasive than the opponents' testimony because many of the proponents were business executives or leaders of local business groups who are more familiar with the locality and economic issues in this area.
* BNSF's participation in the Rathdrum Downtown Redevelopment Project may ultimately help increase the tax base and income to that area.
* Power's position had little substance. His position was essentially one against all development. Powers did not criticize the basic conclusions in Schleede's study, he just asserts the same benefits will accrue wherever the Facility was located. Dr. Schleede's data and conclusions are more credible and more compelling.

2.21.2 **Water Quality and Environmental Issues**

A. Speakers in opposition raised the following points concerning water issues:
* The modeling relied upon by BNSF was invalid and flawed. There exist uncertainties in models and without a perfect view of the subsurface, one cannot know for certain whether a spill would reach the aquifer or not.

* There are numerous BNSF sites which are contaminated in Montana. BNSF has not been responsible about remediation at these locations.
* Given that a high number of accidents are caused by human error, the risk is too great to allow this Facility over the aquifer. BNSF does not have good safety measures in place, thus the probability of human error and accident is high.
* There are significant health risks associated with ingestion of diesel fuel.
* Bioremediation is not possible at this location.
* This Facility would be better placed at an alternative location.
* Allowing this Facility over our aquifer simply poses too great a risk.

B. Speakers in favor raised the following points concerning water quality issues:

* The Division of Environmental Quality and the Bureau of Reclamation, our own agencies, have reviewed the modeling done by BNSF's consultants and have verified that they have fairly represented the outcome in the event of a diesel release at the Facility. The Bureau of Reclamation further stated that all of the aquifer and model parameters used in the simulation by BNSF seemed reasonable and appropriate and that the flowpath simulation appeared to be correct. **(PA-27)**.
* Dr. John Farr, a groundwater expert and professional engineer with 21 years of experience who has consulted for the EPA, stated that any fuel leak will travel less than 1000 feet and thus the aquifer will be safe. Diesel fuel, unlike gasoline, does not dissolve in water. It will take a plume one year to travel 1000 feet and thus, there will be ample time to remediate a spill. There is, with this Facility, a "vanishingly small chance of release." The range of uncertainty that exists with modeling was taken into consideration and applied in reaching the modeling conclusions. Applying the most conservative approach, as suggested by Division of Environmental Quality, it is still clear that the plume will not travel off of BNSF's property. The opposition's scenarios establishing a greater degree of migration for the plumes involved gasoline and not diesel fuel. The two substances have different properties and behaviors.
* Dr. John Buchanan, a Professor of Geology at Eastern Washington State University and groundwater scientist with years of experience with the Spokane aquifer stated that the aquifer will not be affected in even the most unlikely release scenario. He based his conclusions upon computer simulations based on real life data. Even if a catastrophic spill occurred with no remediation, he states that no wells will be affected. He further stated that Tim Rapp was unaware of the most recent report done by BNSF. He stated that the data used included recharge rates from Painter's '91 study, and not only one on site boring well, but also surrounding well logs and East Greenacres Irrigation District's records. He further accounted for the heterogeneity in the flow model. He ran 18 simulations before selecting the most accurate one. He indicates that if the opposition's ideas were applied, it would make the capture zone farther away, not closer and that that would actually provide greater support to BNSF's conclusions. He has worked on this aquifer since 1984 and has published on it. He believes that the "steady state" approach is the proper approach. Dr. Buccanon also pointed out that none of the opposition had met his challenge of showing which wells would be contaminated by a release.
* Melissa Papworth, a professional engineer who works on release and cleanup of sites, stated that the diesel plumes do not migrate more than 1000 feet. The modeling used by BNSF employed very conservative values; however, she

pointed out that one could also look to real life examples in support of BNSF's conclusions. Most underground releases which additionally contained solvents have not moved in excess of 300 feet. Any release from this Facility will have to pass 4 levels of containment before reaching the ground, and will contain no solvents. Thus, in her opinion, there was no identifiable risk to the aquifer.

* Melissa Papworth also stated that the Montana sites involved finer grain soil and less depth to the groundwater creating a significantly smaller buffer zone. Those releases occurred over many years before they were discovered and still the plumes migrated no more than 400 feet. She contrasted those facts to this case where immediate action will be taken because of the mechanisms in place to ensure early detection. She also noted that the Montana sites did not have secondary containment in many instances and noted that this Facility will have such containment and then some and that all of the containment levels will have release detectors.
* Matt Rose, the President of BNSF indicated that many of the releases that occurred at other locations were in facilities that BNSF owned but did not operate.
* Kenny Hancock stated that additives were largely the problem at these other sites where contamination has occurred. Diesel fuel typically has no additives.
* Most of the Montana problem sites were from spills and leaks from the 1940's to the mid 1970's. Better designs and engineering since have reduced the threat of similar problems in modern facilities. BNSF is committed to cleaning up these sites and remediating problems. They have spent $13 million thus far and will continue to do whatever is necessary until complete remediation has occurred. Additional money has been budgeted for clean up. The only site where drinking water was affected was Livingston. This contamination was due to solvents and not the fuel itself. **(A-36)**.
* Recently, BNSF had its safest year in their history. Training programs are in place to increase safety. Napping and time off appear appropriate. **(B-4)**.
* There is state of the art fire protection integrated into this Facility. **(A-26).**
* BNSF won the TRANSCAER National Achievement Award in 1998 for community outreach, emergency preparedness, training, and assistance planning. **(A-41).**
* The City of Topeka gave BNSF the "Gold Award" for 100% compliance in meeting or exceeding environmental water discharge and reporting standards. **(A-41)**.
* BNSF has been a "good neighbor" and has assisted the Rotary with a world community outreach project to help disabled and disadvantaged people throughout the world. **(A-41).**
* 99.9 % of tank cars arrive incident free. BNSF has an impressive record of moving hazardous materials safely. **(A-40)**.
* Curtis Froscheiser states that employees are trained and updated continually and well.
* BNSF's environmental programs are significantly reducing the amount of hazardous wastes generated. They are reducing pollution at its source across the nation. **(A-34)**.
* Kenny Hancock, the engineer who designed the Facility, stated that in the unlikely event there were to be a large release, both bioremediation and biodegradation will be utilized. They will work at this site.

* The alternative Ramsey/Chilco site was analyzed and considered not a viable option because it is located over a critical aquifer recharge area (CARA), designated for rural use, BNSF didn't own the property, it was closer to a greater number of nearby wells, and it would require a zone change to place this Facility there. CARA deserves equal to or greater protection then the aquifer itself. Further, given the complex configuration of bedrock beneath the surface there, which is not well described, any infiltrating liquids could move in unpredictable manners. **(A-29, A-30)**.
* BNSF's two lines from the East and two lines from the West converge into a single line corridor known as the "funnel" which runs through the proposed site. This is the best location for all trains to be served. **(A-27)**.
* BNSF has had a rail yard in operation in Hauser since the 1970's. **(A-26)**.
* The proposed site is near an existing crew-change point. Other sites are not. Other possible sites have unsuitable topography for construction of this Facility. **(A-5)**.
* Additional aquifer monitoring wells will be installed and the scientific data resulting from the review process will be available to all aquifer regulatory agencies. **(A-27)**. BNSF is willing to drill as many test wells as the agencies require. **(Kevin Barker)**.
* BNSF will post a $5 million environmental protection bond. The Facility will have state of the art double bottomed fuel tanks above ground with leak detection. The tank area will have thick concrete containment walls that could contain 130% of the fuel products which will be on site. A 6" sealed concrete floor contains the entire fueling platform. The Facility is built to exceed local earthquake requirements. All below surface pipes transporting petroleum products are double walled with leak detection. Ground water monitoring wells will be on-site. A quick response plan will be in effect and all personnel will be trained. The Facility meets or exceeds all federal, local, and state regulatory requirements. **(A-26)**.
* The HDPE liners have a life expectancy of hundreds of years in environments that are more aggressive than this one will be. **(A-28, Kenny Hancock)**.
* There will be multiple levels of leak detection, emergency shut down systems which are both automatic and manual, and any wastewater or oil will be collected and hauled off the site or recycled respectively. **(A-49)**.
* BNSF will implement an aggressive spill prevention and response-training plan. A comprehensive inventory reconciliation plan with weekly "hard" reconciliation and daily "soft" reconciliation efforts will be employed. This will allow for early detection of any variances or discrepancies in volumes so that BNSF can take prompt and appropriate action. **(PA-18)**.
* Bonner and Boundary Counties noted that the Facility's safety standards would exceed the requirements of Panhandle Health. **(PA-14, PA-11)**.
* The HDPE liners have seams that consist of two heat fusion welds with an air test cavity between the two weld seams. The air test cavity is used to test the integrity of the seams. If a leak or hole is detected, a heat extrusion weld will be used to repair it. HDPE has been used for sometime and the integrity of these liners is good. **(A-38)**.
* Matt Rose, the President of BNSF, gave his personal pledge that this Facility will be built and operated in the safest manner possible. He stated that the health and safety of his employees is of paramount concern. He also established that

there was no other facility with equal environmental protections and that in the last ten years, they have added far greater protections than ever before.

* Kenny Hancock, one of the engineers who designed the Facility, stated that he has designed 7 refueling facilities in 8 years and worked with an experienced team in designing this one. There is redundancy in containment at every level. The odds of a spill penetrating every level and going undetected are infinitesimally small. The designs employed are "proven" designs. This combined with the fact that visual inspections will occur daily leaves him confident that no water will be affected.
* Rand Wichman, a Senior Planner for Kootenai County, traveled to California to view a similar facility. He found an efficiently operating, clean facility, with no spills and the ability to shut down operations from numerous points. He spoke with the California equivalent of Division of Environment and they expressed that there had been no environmental problems created by the facility.

C. The Board of County Commissioners has found in favor of the Applicant because:

* The Division of Environmental Quality and the Bureau of Reclamation, our own agencies have verified the model and found the engineering plan for this Facility to be acceptable.
* While it is true that models can be manipulated, the opposition never presented any specific scientific evidence to establish that BNSF's model was in fact incorrect. There was no opposition model to show a differing outcome from that proposed by BNSF. There was no scientific evidence by the opposition that credibly established that the aquifer would in fact be reached by a spill or that the modeling outcome should have established contamination of any specific wells or the groundwater. The opposition's evidence did not establish that BNSF's model or conclusions were not the most accurate information obtainable.
* BNSF's experts had significant credentials and appeared very credible.
* Rand Wichman was a neutral party who visited the California site at the County's expense and found it to be clean and functioning well. California's Division of Environmental Quality equivalent had no problems with the facility there. Mr. Wichman's testimony and photographs were very credible evidence of how well and responsibly the Facility will be operated.
* The other sites that had releases or leaks were older sites without the protections that will be implemented here. There are many factors distinguishing those scenarios from this one. One of the most significant of these distinctions is the fact that none of these other sites were built with the type of engineering and protections that this site will have. BNSF has taken responsibility for cleaning up those sites. The fact that they have budgeted a substantial amount of money to continue clean up efforts in the future is an indication that they will continue to accept responsibility for such accidents.
* The President of BNSF took the time to attend the hearing and personally guarantee that this Facility will be safe. This bolstered BNSF's credibility.
* The fact that only three of the Panhandle Health Board actually viewed BNSF's proposed technology prior to their 4-3 vote to oppose, and the fact that only one of those members who did so voted among the 4 opposing, weakened the credibility of their position on this matter.
* The concept that no risk is acceptable essentially allows for no development. Risks are inherent in everything. The focus should be on what is an acceptable risk. This appears to be an acceptable risk.

* The health risks associated with ingestion of large amounts of diesel fuel will be of concern only if it appeared that the fuel would contaminate our water supply without detection. BNSF's evidence is substantial that the risk of this is infinitesimally small. Further, if there is contamination, BNSF will have to provide a continuous suitable alternate supply of drinking water, so no contaminated water will be ingested. The health and safety of our citizens will be ensured.
* BNSF's experts indicated that bioremediation and biodegradation would work in this location. Their evidence was credible on this issue. There was little evidence supporting the oppositions' assertion that such techniques would not be successful here.
* BNSF's team has researched the possibilities of locating the Facility at alternative sites. Their analysis of all pertinent and applicable issues is persuasive. The opposition has not done the detailed research and thus their position that another site, particularly the Chilco site, would be better is less persuasive.
* The levels of containment, leak detection, emergency shut off programs, engineering above and beyond present requirements, including earthquake requirements, and the training programs for the employees make this a very safe Facility and significantly reduce any risk to the aquifer. This, combined with BNSF's evidence of travel of any plume which could occur, provides adequate assurance that the aquifer will be protected and safe, even in the event of a catastrophic spill.

2.21.3 **Wildlife Issues**

The testimony outlined below had no real relevance to the impact on wildlife that this particular project may or may not have. However, as the grizzly bears in Montana were referenced on numerous occasions throughout the hearing, the Board of County Commissioners makes the following findings:

A. Speakers in opposition raised the following concerns about wildlife issues:

* BNSF has not been responsible in Montana where they have killed over 80 grizzlies.

B. Speakers in favor raised the following points concerning wildlife issues:

* Montana Fish, Wildlife, and Parks found BNSF to be a very responsive and helpful neighbor. BNSF has worked closely with them to identify problems and solutions regarding natural resource issues. The agency highlighted BNSF's work to protect the Grizzlies in that area. (PA-35).
* The U.S. Dept. of Agriculture and the Governor of Montana also praised BNSF's efforts to protect the Grizzly bears and work in conjunction with Montana Fish, Wildlife, and Parks. **(PA-23, PA-22).**
* BNSF has exhibited a commitment to co-existing with wildlife and a commitment to the environment and animals. **(A-34, Bruce Sterling).**

C. The Board of County Commissioners has found in favor of the Applicant because:

* The allegations of the opposition are not substantiated by the authorities who actually were dealing with the grain spill and Grizzly concerns. The fact that an officer from the Montana Fish, Wildlife, and Parks agency took the time to drive over here and testify in this proceeding helped establish the importance the agency placed upon its positive relationship with BNSF.

2.21.4 **Air Quality and Noise Issues:**

A. Speakers in opposition raised the following points concerning air quality and noise issues:

* Present dust control isn't working. Many of the trees BNSF planted have died.
* Fumes generated from the trains and fueling process will be detrimental to local residents, particularly those with asthma.
* Noise and vibration from the trains are presently unbearable. This will make it worse.

B. Speakers in favor raised the following points concerning air quality and noise issues:

* Due to the limited air emissions from this Facility, the Division of Environmental Quality exempted this project from Permit to Construct requirements. **(PA-18).**
* Moving freight by rail versus by trucks on highways conserves fuel, which benefits the air quality. If just 10% of freight being moved on highways were diverted to rail, we will save 200 million gallons of fuel each year in the United States. Railroads emit only 1/10 the hydrocarbons and particulates for every billion ton-miles of transportation and 1/3 of the nitrogen oxide and carbon monoxide as compared to trucks. **(A-40, Kathleen Kessler).**
* BNSF is investing in the newest, most fuel efficient, and lowest emission locomotives. **(A-34).**
* Each diesel tank will have a carbon adsorption vapor recovery system even though these are not required by the Division of Environmental Quality. Additionally, there will be exhaust fans to help dissipate any fumes generated by idling trains. **(A-5, Kenny Hancock).**
* Janet Scheier testified that all air emissions were estimated conservatively and pollutants will fall below acceptable standards for odor and emissions.
* Construction of this Facility will improve air quality in the Northwest. Rail is seen as the best hope for getting commuters off the highway in the Seattle area and this Facility will help remedy the incremental and growing environmental degradation in the Seattle area, which is in part caused by present rail congestion. **(PA-36).**
* Berms with greater than 1200 trees have been constructed to buffer views and noise for the neighbors. Additional trees have also been planted along Highway 53. **(A-27).**
* There will be no significant dust generated by the Facility. **(A-5).**
* Several nearby residents supported the Facility.
* Steven Meyers testified that BNSF has planted new trees and is eliminating horns and improving crossings.
* Hugh Saurenman, a noise vibration specialist, testified that the berm would block much of the noise from the Facility. Noise levels, according to his study, will be below the acceptable standard levels.

C. The Board of County Commissioners has found in favor of the Applicant because:

* BNSF has already begun planting tree and replacing trees to provide an appropriate buffer. The berms, trees, paved roads and portions of the Facility will keep the dust at bay. There will not be significant dust generated by this Facility. The fueling bay is covered which will further reduce noise and dust.
* The filter system and exhaust fans utilized at the Facility will protect our air quality.
* While some nearby residents complained about these issues, other nearby residents spoke in favor of BNSF. The noise or impact to the air quality will not be substantial and will not be increased from its existing level because of the operation of this Facility.

2.21.5 **Transportation issues:**

A. Speakers in opposition raised the following points concerning transportation issues:

* There was no proof that the project would minimize traffic.
* Access for emergency vehicles would be poor, given the time one has to wait at crossings.
* Trains will block crossings, particularly McGuire Road.

B. Speakers in favor raised the following points concerning transportation issues:

* BNSF will contribute $1.25 million toward a new road/rail grade separation project. **(A-26).**
* There was testimony that the Facility will have 45-mph turnouts and 17,000 ft. long tracks. Thus, no trains will block nearby intersections as a result of Facility operations. BNSF will work with the transportation and highway departments if needed to improve the grade crossings.
* The Washington State Dept. of Transportation supports this project because of the benefits it will provide to Seattle area transportation issues. **(PA – 36).**
* This Facility will help prevent bottlenecks, increase efficiency and eliminate congestion in rail traffic. **(PA-28).**
* The Post Falls Highway District supports this project and feels that both the Highway District and the community will benefit from its operation. **(PA-17).**
* Robert Boileau, a civil engineer, testified that the road improvements would help future traffic and growth issues and increase roadway safety in this area. He further confirmed that trains would not block McGuire Road.

C. The Board of County Commissioners found in favor of the applicant because:

* The improvements to the crossings and the engineered turnouts will prevent and improve traffic problems at nearby crossings, including McGuire Road. BNSF's contribution toward the road/rail grade separation project and willingness to work with the transportation department on these issues will improve traffic issues and crossing safety.
* There little scientific or researched evidence contradicting the assertions of BNSF that the traffic issues would be improved. The traffic study that is a condition of approval herein (7.14) shall mitigate any concerns voiced by the opposition in this regard. Prior to the use of the Facility or issuance of any Certificate of Occupancy, BNSF shall have to submit a new traffic study and work with any local traffic agencies towards mitigating any negative traffic impacts detected. The evidence supporting BNSF's representations is substantial, sensible, and credible. The traffic issues will be addressed and improved by approval of this project.

2.21.6 **Idaho Code, Zoning, and Comprehensive Plan Issues:**

A. Speakers in opposition referenced the following items from Idaho Code, Zoning Ordinance, and Comprehensive Plan:

* References were made to §67-6512 of the Idaho Code in support of the position that a CUP is appropriate if it is not in conflict with the Plan and is conditionally permitted by the terms of the ordinance.
* References were made to sections 11.09, 30.01 and 33 of the Kootenai County Zoning Ordinance. Section 11.09 sets forth the applicable noise standards. Section 30.01 states that a conditional use may be permitted only after finding that the use proposed will be in conformance with the Comprehensive Plan and will be in the public interest or not adversely affect the public interest. Section 33.21 and 33.22 set forth the standards for above-ground bulk storage of over

twenty thousand gallons of petroleum products and for public utility complex facilities respectively.

* References were made to Goal #2 and the Natural Resources section of the Comprehensive Plan. Goal #2 is to maintain the existing high quality of groundwaters in Kootenai County.

B. Speakers in favor referenced the following points concerning these issues:

* In addition to those points listed above in section 2.21.1 through 2.21.6, the Applicant set forth several points. BNSF property is designated industrial under the Comprehensive Plan. The project utilizes best management practices consistent with the best available technology to mitigate concerns pertaining to potential environmental impacts. The Comprehensive Plan does not require that all risk, no matter how small, be eliminated. The project will not adversely affect public interest, but rather, by approving a well-designed Facility which is consistent with the existing zoning and Comprehensive Plan designation, and which utilizes the best management practices and technology to eliminate all reasonably foreseeable risk to the aquifer, the public interest will be served. The conditional use standards for the Facility in section 33 of the zoning ordinance will be met **(A-5)**.

C. The Commissioners found in favor of the Applicant on these issues because:

* Evidence presented as outlined in sections 2.21.1 through 2.21.6 herein show that the Facility will be in conformance with the Comprehensive Plan and will be conditionally permitted under the ordinance.

* Further, the evidence detailed above does establish that this project will be in the public interest in that the economic benefits to the community are significant, there will be benefits to the air quality, water quality will be protected and potentially enhanced by the data gained from the additional monitoring wells, BNSF has proven itself a "good neighbor" and responsible business presence in numerous communities, and railroad crossings will be improved as a result of approving this project.

* BNSF will be required to meet all regulatory standards of various agencies and all applicable Conditional Use Standards in section 33 of the zoning ordinance.

* Conditions of Approval and this Order include requirements for BNSF to provide protection for the environment, specifically including the aquifer, mitigation of impacts to the adjacent property owners, safety and fire protection maximization, implementation of best management practices for operation, and qualified supervision of operations and the site on a daily basis. Provisions are in place which will minimize risk and damage in the event a leak is detected or the water is contaminated. The Bond and condition to provide drinking water will protect the community who draws water from the aquifer in the event of contamination. Buffering with berms and trees is in place for noise, view, and dust mitigation. The project is in conformance with the comprehensive plan. It reflects the goals of and takes into account the factors in the comprehensive plan in light of the present factual circumstances surrounding the request.

III APPLICABLE LEGAL STANDARDS

3.01 Kootenai County Zoning Ordinance No. 159, as amended
Article 1, Purpose of Zoning Ordinance
Article 2, Rules and Definitions
Article 11, Industrial Zone

Section 11.14, Conditional Uses
Article 17, Design Standards
Section 33.21, Above ground Bulk Storage of Over 20,000 Gallons of Petroleum Products
Section 33.22, Public Utilities Complex Facility

3.02 1994 Kootenai County Comprehensive Plan

3.03 Idaho Code, Section 67-6501, et. seq., Local Land Use Planning Act; Section 67-6512, Special Use Permits; Section 67-6519, Permit Process

3.04 Bone vs. City of Lewiston, 107 Idaho 844, 693 P.2d 1046 (1984). The Comprehensive Plan should not be elevated to the status of the zoning ordinance. It is a general guide for future development. Whether a project is "in accordance with" the Comprehensive Plan is a question of fact. The Board of County Commissioners must make the factual inquiry into whether the proposal reflects the goals of and takes into account those factors in the Comprehensive Plan in light of the present factual circumstances surrounding the request.

IV COMPLIANCE REQUIREMENTS

4.1 The application by BNSF for two conditional use permits meets the application requirements of the Kootenai County Zoning Ordinance No. 159, as amended.

V. COMPREHENSIVE PLAN ANALYSIS

5.1 The Kootenai County Comprehensive Plan was adopted by resolution of the Board of County Commissioners on March 16, 1994 *(Resolution 94-08).* Participants in that effort included not only Planning & Zoning staff, Planning Commission members, and representatives of the environmental and business communities, but also many representatives from public agencies having jurisdiction over the protection of our land, air and water, such as Panhandle Health and the Idaho Division of Environmental Quality. *(Comp Plan, Acknowledgments).*

The Plan itself is not a development ordinance and has no regulatory powers. It depends upon implementing tools such as zoning and subdivision ordinances to give it life. *(Comprehensive Plan Part One, pp. 3 and 36).* It is divided into two parts. Part One includes the text, goals, objectives, policies, implementation matrix, and land use map, which form the substantive requirements of the Comprehensive Plan. Part Two includes "the research and analysis, maps, graphs, and tables that were used for background information." *(Comprehensive Plan Part One, p. 4, emphasis added).*

Kootenai County's Comprehensive plan was designed to "ensure orderly growth and management of the County's natural resources and environmental qualities, while encouraging the continued strong economic development that has been seen in recent years." *(Comprehensive Plan Part One, p. 3)* The Plan is a "general, long-range plan." The recommendations in the Plan are intended to be broad, rather than narrowly defining decisions for land use at specific sites. Further, the plan is intended to be a *guide* and not a rigid regulatory document. Id.

In the context of a Conditional Use Permit application, the Comprehensive Plan is given some substantive application. A conditional use is defined as:

> A use listed among those classified in any given zone but permitted to locate only after review and which requires a special degree of control to make such use compatible with other permitted uses in the same vicinity and zone and assure against imposing excessive demands upon public utilities and facilities.

(Zoning Ordinance, Article 2). Before a Conditional Use Permit is granted, it must comply with the performance standards of the Zoning Ordinance, be in conformity with the Comprehensive Plan, and be in the public interest, which is also stated as "not adversely affect the public interest". *(Idaho Code § 67-6512(a); Zoning Ordinance Article 30, § 30.01).* Whether a project is in accordance with the Comprehensive Plan is a question of fact to be determined by the Board of County Commissioners. In this case, the proposal is in accordance with the Comprehensive Plan because it meets the goals of and takes into account the factors in the Comprehensive Plan in light of the facts of this proposal. *(Bone vs. City of Lewiston, supra).*

The Burlington Northern and Santa Fe property is zoned industrial under the Kootenai County Zoning Ordinance. As such, it is "suitable for manufacturing and processing of all types." *(Zoning Ordinance §11.00).* BNSF's application in this matter was for two conditional use permits to allow for the bulk storage of over 20,000 gallons (per site) of petroleum products, and the construction and operation of a "public utility complex facility". A "public utility complex facility" is defined in pertinent part as follows:

> A public utility facility of major importance involving construction of facilities of a complex nature including, but not limited to: . . .. pumping stations . . . railroad transportation lines or spurs, railroad classification yards . . . .

(Zoning Ordinance Article 2, §2.02).

As a conditional rather than outright permitted use, the project must conform to the conditional use standards set forth in the Zoning Ordinance, and the County may impose conditions on approval to make it compatible with surrounding land uses. The conditional use standards for the storage of petroleum products are as follows:

- Zones permitted: Light Industrial, Industrial.
- Five acre minimum area.
- Setbacks in accordance with current fire and safety codes and not less than 50 feet from any property line.
- Contained within a sight-obscuring fence not less than six feet in height or sight obscuring evergreen trees or compact hedge not less than six feet in height. The landscaping will have adequate sprinkling systems and proper maintenance.
- Located and/or designed with full consideration to their proximity to adjacent uses, their effect upon adjacent property, and to the reduction of inherent dangerous factors.
- Maximum vertical height of forty feet if within 300 feet of any residential zone.

- Conform to standards prescribed by the National Fire Protection Association, the American Petroleum Institute, and all other authorities having jurisdiction, whichever regulations are more restrictive.

(Zoning Ordinance Article 33, § 33.21).

As a public utility complex facility, no minimum site area is required; however, not more than 35% of the total lot area may be covered. The Board of County Commissioners must also consider the public convenience and necessity of the Facility, and any adverse effect that the Facility will have upon nearby properties. *(Zoning Ordinance Article 33, § 33.22).* The importance of the facility to rail commerce and jobs, together with the design, engineering and operating features which minimize the potential for adverse effects, firmly establish the public convenience and necessity for this Facility.

The BNSF property is designated industrial on the Comprehensive Plan Future Land Use Map. The future land use designations on the map were chosen and defined "in consideration of existing land use, land use potential, environmental conditions, the goals of Idaho's Local Planning Act, and the goals of this Plan." *(Comp Plan Part One, p. 16, emphasis added).* The Industrial designation:

> Is given to large areas where industrial development is desirable to the community and where appropriate levels of services, transportation systems, and infrastructure will be efficiently provided.

(Comp Plan Part One, p. 19). The Comp Plan acknowledges that industrial development can have important benefits to the County's economy, creating jobs, increasing the tax base, etc. Id.

The Aquifer and its recharge zones underlie much of Kootenai County. Twelve of the fourteen incorporated areas in the county are in the Rathdrum Prairie Region, sitting over the Aquifer. *(Comp Plan Part One, p. 7).* At the time the Comprehensive Plan was written, 75% of the population in Kootenai County lived in the Rathdrum Prairie Region--sitting over the Aquifer. *(Comp Plan Part Two, p. 38).*

The prevailing theme of the goals, objectives and policies of the Comprehensive Plan is one of land uses being defined by high performance standards, and best management practices consistent with the best available technology, rather than outright prohibitions. The Comprehensive Plan does not require that all risk, no matter how remote, be eliminated, nor could it if consistent with any human activity on the Prairie. In some respect, the goals, objectives and policies set forth in the Comprehensive Plan compete with and against each other. Application of the Plan requires a balancing of the competing policies by the Board of County Commissioners. *(Bone, supra).*

The Comprehensive Plan does not include the "Precautionary Principle" adopted by the hearing examiner. That principle ignores science, avoids the quantification of risk, and requires the elimination of all risk, again no matter how remote.

The BNSF proposal is consistent with the overall goals, objectives and policies of the Comprehensive Plan, particularly the following:

5.2 **GOAL 1: Maintain and improve air quality.**

Policy 6: Requires that industrial and residential uses be sufficiently separated to minimize the effects of industrial emissions in residential areas.

Policy 8: Encourage a regional air pollution control approach that addresses the problems and opportunities of both Spokane and Kootenai Counties.

Policy 10: Encourage the development of "clean industry."

BNSF is the owner of almost 400 acres of industrially zoned property, of which the project will occupy approximately 20 acres. The large ownership, together with the natural buffer provided by Highway 53 and the physical barriers in the form of berms, landscaping and whatever else may be required as part of the conditional use permit to mitigate impacts on surrounding property owners, reflect that there will be sufficient separation to minimize the effects of the project on residential areas.

The Division of Environmental Quality has issued a Category I Exemption from Permit to Construct, due to the limited air emissions from the project. Though not required by Division of Environmental Quality, a carbon adsorption vapor recovery system for the diesel tanks will be included, to reduce the release of vapors into the atmosphere. Any additional fumes generated while locomotives idle will be dissipated by exhaust fans within the covered Facility. The record further reflects that the project will add very little in the way of additional emissions of particulates, which are of particular concern in Kootenai County.

Additionally, there will be a significant benefit to the air quality from moving goods by train, as opposed to truck. There will also be an overall benefit to the air quality if congestion is relieved in the Seattle area. This will reduce the number of private vehicles utilized in the daily commute and allow more citizens to commute by the more environmentally sound rail.

Goal 1 of the Comprehensive Plan is satisfied. The proposal conforms to the goal of maintaining and improving "air quality" by reducing the harmful effects of poor air quality on human health, safety, and welfare.

5.3 **Goal 2: Maintain the existing high quality of groundwaters in Kootenai County.**

Policies 1, 2, 4, 7, 9, 11, and 13 provide for the protection of aquifers, groundwater and recharge areas.

Objective A: Protect a publicly beneficial and publicly owned resource.

Objective B: Ensure that high quality groundwater is available for domestic, commercial, agricultural, and industrial purposes.

Objective C: Recognize that the Rathdrum Prairie Aquifer has been designated as a "sole source drinking water supply" by the federal

government, and its protection is vital to the overall well-being of Kootenai County, Idaho, and Spokane County, Washington.

Objective D: Protection of groundwater is vital if other water resource goals are to be attained.

In line with the policies under this goal, BNSF considered existing public wells in the area, and supports the state's efforts to add additional monitoring wells in the vicinity. There will be no discharge of non-domestic wastewater to the subsurface. The Facility will be covered to minimize wastewater that is to be hauled off site and disposed of elsewhere.

BNSF has incorporated many protections into the Facility design, which go beyond any actual requirements contained in the Zoning Ordinance or the Comprehensive Plan. The Facility will use double-walled pipe below grade. There will be no direct discharges of industrial wastewater, or even collected stormwater runoff, into the Aquifer. The location of existing public water supply facilities has been considered, and BNSF has confirmed that even in the worst case, albeit unforeseeable, scenario, they will not be affected. Substantial monitoring coverage will be provided through the installation of monitoring wells, in amounts and locations determined by the Division of Environmental Quality. The scientific data obtained from the monitoring wells throughout the review process will be available to all aquifer regulatory agencies.

Even the requirements of Panhandle Health's Critical Materials Regulations have been exceeded, with three, and sometimes four, levels of containment and monitoring, rather than the mere double containment required by the regulations. Leak detection will be in place at every level of containment. The entire tank area will have thick concrete containment walls that could contain 130% of the fuel products that will be on site. A 6" sealed concrete floor contains the entire fueling platform. The Facility is built to exceed local earthquake requirements. A quick response plan will be in effect and all personnel will be trained. The Facility meets or exceeds all federal, local, and state regulatory requirements

The HDPE liners have a life expectancy of hundreds of years in environments that are more aggressive than this one will be. There will be multiple levels of leak detection, emergency shut down systems which are both automatic and manual, and any wastewater or oil will be collected and hauled off the site or recycled respectively. A comprehensive inventory reconciliation plan with weekly "hard" reconciliation and daily "soft" reconciliation efforts will be employed. This will allow for early detection of any variances or discrepancies in volumes so that BNSF can take prompt and appropriate action.

Design, construction and operating safeguards are incorporated into the conditions of approval, which include the funding for a position under the Division of Environmental Quality's aquifer protection program, the establishment of a monitoring plan, and monetary bonding for cleanup costs in the unlikely event of a release of contaminants at the site. This, combined with BNSF's evidence that any plume which could occur will not reach the aquifer or travel off BNSF's property, provides adequate assurance that the aquifer will be protected and safe, even in the event of a catastrophic spill.

Under these circumstances, Goal 2 of the Comprehensive Plan is satisfied.

5.4 **Goals 3 through 8** are not applicable to the proposal.

Goal 3 does not apply because this project will not demand significant groundwater resources.

Goal 4 does not apply because this project does not affect the water quality and quantity of lakes, streams, rivers, or wetlands nor is the site situated near any of the same. There was a concern expressed that if the aquifer were contaminated, it would flow into the river and thus negatively impact the water quality of the river. However, for the reasons set forth in section 2.21.2 herein, there exists no significant threat to the water quality of either the aquifer or the river and thus if Goal 4 does apply, it is satisfied.

Goal 5 does not apply because this project will not significantly impact any native vegetation. The only evidence significantly addressing this topic was that related to weeds on the property and through the conditions of this order, they will be properly controlled. Thus, if Goal 5 applies, it is satisfied.

Goal 6 does not apply because this project will not detriment or impact fish or wildlife habitats. There was some testimony concerning BNSF's cooperation with the Montana Wildlife and Parks agency; however, that was not particularly relevant to this goal or the impact of this project. The fact that trains may have killed grizzly bears in Montana is not particularly relevant to whether or not they will do so at this site. The location in question in Montana was a park area which was home to a significant grizzly bear population. The location at issue here is of an entirely different character. Further, the testimony concerning the bears was offered more for proof of BNSF's responsibility or lack there of and not impact on the wildlife of this particular project. Any impact to fish or other wildlife from contamination of the aquifer would only occur if a leak actually contaminated the aquifer and ultimately the river. For the reasons stated above, that is not a significant threat. Thus, Goal 6 does not apply, and in the alternative, if it does, it has been satisfied.

Goal 7 does not apply because the project site is not in a hazardous area.

Goal 8 does not apply because this project is not within, nor does it contribute to heavy metals contamination in the Coeur d'Alene River Basin.

5.5 **Goal 9: Develop land use regulations that protect property rights, maintain quality of life, provide adequate land for development, buffer non-compatible land uses, and protect the environment.**

Policy 3: Require all future commercial and industrial activity to have adequate infrastructure.

Policy 6: Minimize encroachment of incompatible land uses on land established or designated for commercial, industrial, agricultural, mining or similar uses.

Policy 9: Carefully consider natural site characteristics (slope, soil type, proximity to surface water, etc.) in evaluating proposed land uses and densities.

Policy 10: Encourage a balance of land uses to ensure that Kootenai County remains a desirable, stable and self-sufficient community.

Policy 13: Guide growth into geographic areas that can provide adequate public services.

Objective A.: Protect health, safety, and general welfare of residents.

Objective B: Ensure long-term land use compatibility.

Objective C: Encourage growth where appropriate.

BNSF is only seeking permission to develop its property in a manner which is consistent with the existing industrial zoning and Comprehensive Plan designation, with conditions to mitigate potential adverse impacts on the surrounding property owners. Goal 9 recognizes private property rights.

Policies 6 and 10 recognize the importance of industrial and uses other than residential, as needed for a balanced economy. Adequate public services–water, sewer, fire and emergency service protection–are available to the project at this site. The East Greenacres Irrigation District will provide water for both domestic use and fire suppression. Subsurface sewage treatment will be available on site only for the domestic wastewater generated by the use of the administration building, with other wastewater and collected stormwater from the tank farm, fueling platform and unloading platform being collected and hauled off site for proper disposal. Other stormwater such as runoff from the roof of the administration building and parking lot will be directed to grassy swales, etc. Fire protection will be available through both a number of automatic, on-site features as well as through the Rathdrum Rural Fire Protection District. BNSF will contribute towards the purchase of a fire truck for the District to mitigate any potential adverse impacts on the fire department's service capabilities by reason of the Facility.

The BNSF property is, and has for many years been, zoned industrial. Its use for industrial purposes is entitled to be placed on equal footing with the surrounding land uses.

Under these circumstances, Goal 9 of the Comprehensive Plan is satisfied.

5.6 **Goals 10 and 11** are not applicable to this proposal.

Goal 10 is not applicable because this project does not impact population growth.

Goal 11 is not applicable because this project does not provide housing of any kind.

5.7 **GOAL 12: Promote a diversified, safe, and stable economic base in an environmentally responsible manner.**

Policy 4: Promote economic development from within the County.

Policy 5: Encourage new businesses that create jobs for residents in the County.

Objective A: Promote an economic system based on Long-term benefits for all County residents.

Objective B: Promote sustainable, long-term employment for all citizens.

BNSF and its predecessors have been a part of this community for over 100 years. The maintenance of its operations and competitive edge help not only the company, but also the railroad's customers, and ultimately the community as a whole. New jobs will be created at the Facility. Kootenai County's unemployment rate, according to Jobs Plus testimony, runs at around 7%, higher than the national average. The Comprehensive Plan is designed to facilitate development and job growth, so long as it can be done in an environmentally responsible manner.

The railroad industry is generally a safe and stable economic one. That BNSF has attempted to be environmentally responsible is evident from the work that was done to safeguard the Facility and from the efforts they have made to work with the authorities and agencies to remediate problems and protect the wildlife. Significant economic benefits from both the construction and the operation of the Facility have been established by credible evidence and testimony.

This project will be of local, regional, and national economic importance.

Under these circumstances, Goal 12 of the Comprehensive Plan is satisfied.

5.8 **Goal 13: Maintain viable agricultural, forestry, and mining land uses.**

BNSF provides valuable services to both agricultural and forestry corporations in the Pacific Northwest and specifically, in Idaho. The railroad's ability to ship their goods in a cost-effective and timely manner is important not only to the railroad, but also to the economic viability of those industries.

Under these circumstances, Goal 13 of the Comprehensive Plan is satisfied.

5.9 **Goal 14: Provide for the efficient, safe, and cost-effective movement of people and goods.**

BNSF demonstrated that rail transportation is an efficient and cost-effective means of moving goods. The focus of the Transportation Element of the plan identifies the critical importance of the integration of all modes of transportation, including rail, and recognizes that the preservation of mobility produces widespread benefits to the community. The integration of the different methods of transportation is also enhanced by the proposal, such as with the improvement to road crossings that will be done if the permit is approved. The various awards for safety awarded around the nation to BNSF and the ample training programs BNSF utilizes, combined with the accident rate decrease in recent years and safety rates of the tank cars establish that this Facility will help provide for safe movement of goods.

Under these circumstances, Goal 14 of the Comprehensive Plan is satisfied.

5.10 **Goals 15 and 16** are not applicable to this proposal.

Goal 15 is not applicable because this project has nothing to do with the airport.

Goal 16 is not directly applicable because this project does not impact and is not associated with government activities. The only issue somewhat on point is that of the Division of Environmental Quality position which will be funded to monitor this project. The creation and implementation of that position will help improve efficient, convenient, and effective government services and thus, establishes that Goal 16 is satisfied.

5.11 **GOAL 17: Ensure efficient and effective police, fire, and emergency services.**

Policy 2:	Develop minimum regulations and design standards which emphasize fire prevention and protection for all areas of Kootenai County.
Policy 4:	Encourage the development of fire and crime prevention plans among concerned agencies, development industries, and the public.
Policy 7:	Encourage region-wide emergency response capabilities, including hazardous materials releases.
Objective A:	Protect the safety of people and their property within the County.
Objective B:	Reduce personal injuries and property damage from fires and crimes.

The record is replete with the efforts and training in which BNSF engages for dealing with emergency response capabilities and hazardous materials handling, not only for the benefit of the company but also for the region as a whole. Furthermore, the conditions of approval require that BNSF work in conjunction with the Local Emergency Planning Committee to prepare an emergency response plan, detailing procedures for emergency response and reporting with respect to the operation of the Facility, as well as numerous conditions for oversight, inspection and monitoring by Division of Environmental Quality. The contribution of $200,000 toward the purchase of additional fire-fighting apparatus and the required road improvements and contributions will benefit emergency services to both the Facility and to the surrounding community.

Under these circumstances, Goal 17 of the Comprehensive Plan is satisfied.

5.12 **GOAL 18** does not apply to this project because the railroad is not a public utility.

5.13 **GOAL 19: Encourage availability and affordability of energy-related services while protecting the environment.**

The use of rail is more fuel-efficient than the use of trucks, and therefore does provide greater environmental protection.

Under these circumstances, Goal 19 of the Comprehensive plan is satisfied.

5.14 **GOAL 20: Protect water quality to ensure adequate quantity and quality of drinking water to meet the current and future needs in the County.**

Policy 1: Coordinate maintenance, management, and enforcement of plans, such as stormwater and sewage.

Policy 5: Encourage and support local wellhead protection plans to protect drinking water sources.

Objective A: Ensure that sewage disposal, stormwater runoff, and land use activities do not adversely affect or degrade water quality.

Objective C: Protect public health and the environment by ensuring that wastewater is disposed of safely and in the least harmful way to the land and water.

The overwhelming weight of the credible scientific testimony provided at the public hearings and in the reports in the record supports the conclusion that water quality is protected by this proposal. First, the construction and engineering of the Facility demonstrate that the likelihood for the uncontained release of any diesel fuel at the Facility is extremely remote. The railroad's experts, Dr. John Buchanan and Dr. John Farr, demonstrated that the likelihood of any contaminants reaching the aquifer, and then the likelihood of any contaminants leaving BNSF property, is virtually impossible. Dr. Buchanan and Dr. Farr established that no water wells would be affected, even in the most catastrophic of circumstances.

The conditions of approval provide for the continuation of the Division of Environmental Quality's aquifer protection program, with the funding of a position to man that program by BNSF. The conditions further require the development of a groundwater-monitoring plan, subject to the review and approval of the Division of Environmental Quality, including the installation and utilization of monitoring wells and groundwater testing. These conditions will serve to ensure not only that the Facility is operated in a safe manner, but also to provide the monitoring of other users over the Aquifer, and help to ensure that they are operating in a safe manner as well.

Again, stormwater from the fueling platform, unloading platform, and tank farm will be collected, run through the oil/water separator, and then hauled off-site for disposal at an approved treatment facility. The remaining oil will be recycled further ensuring that the land and water will be protected.

Under these circumstances, Goal 20 of the Comprehensive Plan is satisfied.

5.15 **Goal 21: Provide environmentally sound, efficient, and cost-effective management of wastes.**

The proposal conforms to this goal because all non-domestic waste will be disposed of off-site. There will be an approved septic system for the office.

5.16 **Goals 22 through 25** are not applicable to this proposal.

Goal 22 is not applicable because this project has no involvement with school representatives participating in the community planning process.

Goal 23 is not applicable because this is not a park, greenbelt, or recreation facility.

Goal 24 is not applicable because this site is not on or near a waterfront or shore area.

Goal 25 is not applicable because there has been no indication that this site is historically or culturally significant.

5.17 **Goal 26: Foster growth in a manner which does not compromise the visual qualities of Kootenai County.**

Policy 2: Residential, industrial, and commercial areas may be required to develop and/or maintain visual buffers.

Visual buffers in the form of earthen berms, landscaping and trees, have already been added to improve the aesthetics of existing operations at the site. The conditions of approval further require compliance with the design standards and conditional use standards of the Zoning Ordinance.

Under these circumstances, Goal 26 of the Comprehensive Plan is satisfied.

5.18 **Goal 27** does not apply because there are no natural landmarks, or areas of scenic beauty, such as waterways and unique landscapes, present on this site.

VI CONCLUSIONS OF LAW

6.1 Article 30, Section 30.01 of County Ordinance No. 159, as amended, specifies the General Provisions and Procedures for reviewing requests for Conditional Use Permits. Based on the analysis and findings herein, it is concluded that the request is in harmony with the purpose and intent of the Zoning Ordinance and is in conformance with the specific requirements of Idaho Code and the Kootenai County Zoning Ordinance. The project is in the public interest. The project does not adversely affect the public interest.

6.2 The construction and operation of the Facility will satisfy the performance standards set forth in the Zoning Ordinance *(Article 30, §§ 33.21 and 33.22)* in that the BNSF property is zoned industrial, and it is more than five acres in size, with less than 35% of the total area to be covered. The design standards of the Zoning Ordinance will be adhered to, including proper setbacks and landscaping and/or site-obscuring fencing. Full consideration has been given to the proximity of adjacent uses, the effect of the Facility on adjacent property, and reduction of inherently dangerous factors. The construction and operation of the Facility will also be required to conform to all other applicable regulatory requirements, including those of the Panhandle Health District and the Division of Environmental Quality, prior to the issuance of a certificate of occupancy or commencement of operations. While the overall property may be within 300 feet of property zoned agricultural suburban, the Facility itself is not within 300 feet of any residential zone and thus complies with 33.21 (E).

The public convenience and necessity will be served by the importance of the Facility to rail commerce, the jobs that will be created at the Facility itself, and the combination of design, engineering and operating features which minimize the potential for adverse impacts from the construction and operation of the Facility.

The proposal is in conformance with the goals, objectives and policies of the Kootenai County Comprehensive Plan, as discussed more fully herein.

6.3 The construction and operation of the Facility is in the "public interest" and does not "adversely affect the public interest". *(Zoning Ordinance Article 30, § 30.01.B.4).* No drinking water supplies are at risk because of the construction and operation of the Facility. The public has an interest in the numerous and high-paying jobs that will be created at the Facility. The public has an interest in the safe and efficient transportation of materials and goods by rail. The public has an interest in the improved air quality that will result from this Facility and improved rail transportation. The public has an interest in the additional fire apparatus and improvements to the crossings which will accompany this project. The public has an interest in the combination of sales, property and fuels taxes that will be generated by the Facility and its operations. The public has an interest in the Aquifer protection measures that are not only built into the Facility, but which will also result in improved monitoring of other uses on the Aquifer.

6.4 This proposal conforms with the purpose of the Zoning Ordinance in that it promotes the health, safety and general welfare of Kootenai County. The protections in place at the Facility with regard to leak detection, containment, training, and emergency plans, combined with the additional data derived from additional monitoring wells will promote the health, safety, and general welfare of our citizens. These considerations will also be enhanced by the grade and crossing improvements, the vapor control measures, and the stormwater and waste removal plans. The Facility will help lessen the congestion in the streets, secure safety from fire, and facilitate the adequate provisions of transportation. The contribution for fire apparatus, fire emergency provisions, and road enhancements will address these issues. The industrial zone is suitable for this type of use. Thus, the Facility is in harmony with Article 1 of the Zoning Ordinance.

6.5 This Facility clearly falls within the definition of a "public utility complex facility" under section 2.02 of the zoning ordinance in that it is a public facility of major importance involving construction of facilities of a complex nature including pumping stations, railroad transportation lines or spurs, railroad classification yards, or structures principally used in interstate transmission of fuel.

6.6 The Facility is compatible with the Industrial Zone conditions that allow the development for above-ground bulk storage of over twenty thousand gallons of petroleum products and for a public utility complex facility with a conditional use permit.

6.7 BNSF has complied with the application and permit process detailed in Idaho Code and Article 30 of the Zoning Ordinance. A written application for Conditional Use Permits was submitted and did indicate the Article of the Zoning Ordinance under which they were sought, and did state the grounds on which they were requested. Notice was provided as required by the *Idaho Code*, and as established previously in this report.

6.8 The future land use designations on the map were chosen and defined in consideration of both the environmental conditions and the goals of the Comprehensive Plan. Thus, in designating the zone in which this site is situated Industrial, it can be inferred that this type of use was contemplated in this area. This Facility is a proper use in the proposed location.

6.9 The high performance standards, and best management practices in tandem with the best available technology exhibited by this project are in keeping with the Comprehensive Plans goals, objectives, and policies.

6.10 The Comprehensive plan does not require that a project be completely devoid of all risk. Rather, it requires that any risk be rationally evaluated given the data and information available to determine whether it is a safe and acceptable risk. Further, it requires the evaluation of the other benefits to be gained by the project. It is the role of the Board of County Commissioners to balance the competing policies within the Comprehensive Plan and determine whether the project is in overall conformance and whether it is in the public interest. This project is so on both fronts for the reasons stated herein. *(See Bone, supra, Comp. Plan Part I, p. 3, pp. 36-37, Goal 2, Part II, pp. 13-20, Idaho Code §67-6512, Zoning Ordinance Article 30, § 30.01).*

6.11 These conclusions are based on a thorough analysis of the applicable legal standards contained in Section III of this Order and all of the evidence and testimony presented in these proceedings.

6.12 The Kootenai County Board of Commissioners finds that the request meets the requirements for conditional use permit approval for case no. C-999-99 as outlined in Kootenai County Ordinance 159, as amended, and the Local Land Use Planning Act.

VII. ORDER OF DECISION

Based upon the Findings of Fact and Conclusions of Law, and for the reasons stated, the Board of Commissioners of Kootenai County, Idaho, hereby ORDERS that Case No. C-999-99, the request by the Burlington Northern and Santa Fe Railway Company for Approval to Construct a Public Utilities Complex Facility and Above Ground Bulk Storage Tanks for more than 20,000 gallons of fuel be APPROVED, subject to the following conditions:

7.01 The Applicant prior to commencing any development of the site shall obtain all required permits.

7.02 The Conditional Use Permit shall run with the land which is specifically identified in the aforementioned legal description, and remain valid upon a change of ownership, or until such time the Permit may be revoked or replaced with another approved use. The Conditional Use Permit is not transferable from the approved site to another site.

7.03 The Conditional Use Permit shall be considered to be null and void if substantial construction on the Facility has not been started within 24 months from the date of approval by the Board of County Commissioners. All work shall be completed within 48 months from the date of the issuance of the first building permit by Kootenai County. In the event of a stay, the deadlines shall be tolled until the stay is lifted.

7.04 A mandatory review hearing by the Board of County Commissioners shall be conducted 60 months after the Facility is in operation. Notice for the review hearing shall comply with the notice requirements set forth in Idaho Code §67-6512. The review hearing shall focus on whether the Conditions of Approval have been, and are being met, and whether new or different conditions are necessary. The Board of County Commissioners shall

have the discretion and authority to impose new or different conditions at or following the review hearing if warranted.

7.05 The Facility shall be constructed in substantial accordance with the construction plans and specifications submitted as part of this file, and shall include all of the proposed environmental protection and fire safety measures except as specifically authorized in writing by the County. Any changes to the construction plans and specifications that are required as part of the approval process by other agencies shall be reviewed by the County to ensure that the changes do not substantially change the nature of the project. After construction, the Facility shall be operated as proposed by the applicant during this Conditional Use Permit process. Unless required by Federal, State or local law, the products used at the Facility shall be limited to those proposed by the applicant during this Conditional Use Permit process.

7.06 The Applicant shall utilize a qualified engineer, licensed in the State of Idaho, to supervise on a daily basis, all aspects of the construction of this Facility. The on-site Professional Engineer shall certify that all construction has been completed in accordance with the approved construction plans prior to issuance of Certificates of Occupancy or use of the Facility.

7.07 Kootenai County may hire independent quality assurance/quality control inspectors as necessary to evaluate the construction of the Facility. Cost for such inspectors shall be paid by the applicant per Resolution No. 99-21 as if the inspections were done by the County Engineer. BNSF shall permit access to the facilities by these inspectors to facilitate their evaluations. A BNSF representative shall be present at all inspections for security and safety reasons. The applicant shall be given reasonable notice to make such personnel available. Inspectors shall comply with BNSF safety requirements during inspections.

7.08 The inspection pit for the "bad order" tracks shall be constructed with similar aquifer protection measures as the refueling platform (i.e. sealed concrete, composite liner, wastewater collection, etc.). No major repair work shall be conducted at the Facility. All locomotives identified at the fueling Facility for removal for repair at another location shall be parked over sealed and lined areas such as the unloading platform, fueling platform or inspection pit.

7.09 No fueling or unloading shall occur at the site except at the designated fueling and loading/unloading areas. In the event of a fuel or oil release that is not over a sealed and lined area, the operator of the Facility shall immediately notify the Division of Environmental Quality and Kootenai County in addition to any other appropriate agency entitled to notification of such event. Remediation shall be conducted in accordance with applicable regulations.

7.10 In the event the Applicant, Kootenai County staff, or any other State or Federal agency with jurisdiction discovers the presence of contaminants, including petroleum products, in the Rathdrum Prairie Aquifer as a result of the operations of the Facility, all operations at the Facility shall immediately cease until the source of the contamination is determined and, if necessary, remediation by the Applicant has begun. Operation of the Facility may begin only after the appropriate public agency(s) and Kootenai County have granted clearance.

7.11 After use of the Facility has commenced, the applicant shall provide tours of the Facility to the public. At a minimum such tours shall be conducted at least one day every 3 months for the first 2 years, and by reservation (but not more frequently than once per quarter) after the first 2 years. The applicant may impose reasonable restrictions on such tours to ensure the safety of visitors.

7.12 Prior to use of the Facility or issuance of any Certificate of Occupancy, the applicant shall establish a $5,000,000 environmental protection bond in a form acceptable to Kootenai County. Said bond may be used by Kootenai County to cover the costs incurred by the County as a result of environmental contamination from the Facility. The bond shall be maintained as long as the Facility is in operation or until the Applicant and Kootenai County mutually agree to terminate the bond.

7.13 The applicant shall comply with the road mitigation requirements outlined in the agreement, Exhibit PA-4. Prior to use of the Facility or issuance of any Certificate of Occupancy, written confirmation from the City of Rathdrum, Post Falls Highway District, and Idaho Transportation Department must be received by the Planning Department that the transportation mitigation measures have been completed or that a suitable financial guarantee has been received to ensure timely completion.

7.14 Prior to use of the Facility or issuance of any Certificate of Occupancy, the applicant shall submit a new traffic study, setting forth the base line railroad grade crossing conditions in the vicinity of the Facility. Following commencement of the use of the Facility, the applicant shall work with local traffic agencies (ITD, Post Falls Highway District, and affected cities) towards mitigating negative traffic impacts from railroad operations at the Facility.

7.15 Prior to use of the Facility or issuance of any Certificate of Occupancy the Facility shall be connected to the East Greenacres Irrigation District or other water system that can meet domestic water needs and fire flow requirements. Prior to issuance of building permits, written confirmation must be submitted to the Planning Department from the water purveyor approving plans and specifications for expansion of the East Greenacres Irrigation District's water system.

7.16 The applicant shall comply with the requirements of the Idaho Division of Environmental Quality prior to issuance of building permits for the Facility. Specifically, plans and specifications for the water system expansion and industrial wastewater system must be approved, and plans and specifications for the Facility must be reviewed and approved to ensure that the necessary level of groundwater protection is provided. Written confirmation of the approval of these plans must be provided to the Planning Department.

7.17 The applicant shall submit written confirmation from the Division of Environmental Quality that they have met the requirements for Air Quality permitting. The diesel tanks shall be constructed with a carbon adsorption vapor recovery system as proposed, regardless of whether such a system is required by the Division of Environmental Quality.

7.18 As part of the operation and maintenance plan for this Facility, the applicant shall develop and implement a comprehensive inventory reconciliation plan which incorporates a weekly "hard reconciliation" and daily "soft reconciliation" effort. This plan must be submitted to the Division of Environmental Quality for review and approval, along with BNSF's environmental audit program. Written confirmation that these documents are acceptable to the Division of Environmental Quality must be provided to the Planning Department, prior to use of the Facility or issuance of any Certificate of Occupancy.

7.19 Working in conjunction with the Local Emergency Planning Committee (LEPC), the applicant shall prepare an emergency response plan that details procedures for emergency response and reporting, as part of the operations and maintenance plan for the Facility. Written confirmation that the completed document is acceptable to the Division of Environmental Quality and the LEPC must be provided to the Planning Department, prior to use of the Facility or issuance of any Certificate of Occupancy.

7.20 The applicant shall provide funding for an additional staff position for the Division of Environmental Quality's aquifer protection program as outlined in this condition. That funding shall consist of all reasonable costs for one full time employee, including salary, benefits, overhead, etc., and shall be paid by the applicant annually for a period of 10 years. Primary responsibilities of this staff person will include regular inspection and monitoring of the Facility and tracking of reports as necessary to ensure that it is being operated in compliance with the law and agency requirements. Applicant funding shall begin prior to use of the Facility or issuance of any Certificate of Occupancy. The need for, and funding of, the program shall be reviewed by the Board of County Commissioners, the Division of Environmental Quality, and the applicant at the end of the 10-year period. The Board of County Commissioners may extend the applicant's funding of the program should it appear to be necessary or beneficial.

7.21 The applicant shall comply with the requirements of the Panhandle Health District prior to issuance of building permits for the Facility. Specifically, written confirmation must be submitted to the Planning Department demonstrating compliance with the District's domestic and non-domestic wastewater disposal requirements, and the Critical Materials Regulation.

7.22 In the event that any drinking water well is contaminated from operations at this Facility, as determined by the Division of Environmental Quality, the applicant shall provide an alternate source of clean drinking water to those effected by the contamination. A temporary, on-going source shall be provided within 15 days of notification by the County of the contamination and a permanent alternate source shall be provided within one year.

7.23 The applicant shall comply with the requirements of Article 17, Design Standards, and the Conditional Use Standards of Sections 33.21 and 33.22, of the Kootenai County Zoning Ordinance. The Applicant shall pave all interior access roads serving the Facility, vehicular unloading areas, and parking areas to reduce dust emissions.

7.24 All lighting shall be confined to the premises and shall be downward directed and shielded to prevent illumination at the property line greater than 0.2 foot-candles.

7.25 The Applicant shall prepare an annual work plan with the Kootenai County Noxious Weed Program to provide for the control of noxious weeds on the entire site covered by this Permit. Written confirmation of the approval of this work plan must be submitted to the Planning Department prior to issuance of building permits for the Facility.

7.26 The applicant shall maintain the Facility site in an excellent state of repair by conducting periodic upkeep including, but not limited to, painting, weed control and litter control within the property boundaries.

7.27 The applicant shall comply with the requirements of the Rathdrum Rural Fire Protection District. Prior to issuance of building permits for the Facility, written confirmation must be submitted to the Planning Department approving the plans and specifications for the structures and the fire suppression systems, and confirming that the applicant has made the agreed upon financial contribution of $200,000.00 to the District.

7.28 The applicant shall agree to allow inspection of the entire Facility by Kootenai County, the Division of Environmental Quality, the Panhandle Health District and/or Fire District personnel. A BNSF representative shall be present at all inspections for security and safety reasons. The applicant shall be given reasonable notice to make such personnel available. Inspectors shall comply with BNSF safety requirements during inspections.

7.29 The Applicant shall develop a groundwater-monitoring plan to be reviewed and approved by the Division of Environmental Quality. The monitoring wells required in the monitoring plan shall be completed prior to use of the Facility or issuance of any Certificate of Occupancy. The wells shall be constructed in accordance with the approved groundwater-monitoring plan and shall be fully equipped with pumps which meet the Division of Environmental Quality's requirements for sampling. Sampling of the wells shall be in accordance with the approved plan. If preferred by the Division of Environmental Quality, the on-site staff person from the Division of Environmental Quality may perform the sampling. All costs for lab testing shall be paid by the applicant. The applicant shall also arrange to have a copy of the test results sent directly to the Division of Environmental Quality from the testing lab.

7.30 The applicant shall have a foreman on-site during all hours that the Facility is in operation.

7.31 Prior to use of the Facility or issuance of any Certificate of Occupancy, the applicant shall post the perimeter of the site with a local emergency contact number for the Facility for the public to report any problems.

7.32 If the County finds that any of the above conditions are not being met, the applicant shall be notified in writing and given a reasonable period of time, not to exceed 60 days, to correct the deficiency. If the applicant does not bring the Facility into compliance within the time frame specified by the County, the Board of County Commissioners shall have the option of commencing a properly noticed public hearing to review the allegations of non-compliance, or may take measures as provided by law to bring the site into compliance. Failure to comply with the above conditions may be grounds for terminating the Conditional Use Permit.

7.33 Kootenai County reserves the right to use any or all remedies allowed by local, State, or Federal law to ensure compliance with the terms and conditions of this permit, the Zoning Ordinance and other local ordinances, and State and Federal law.

Information set forth in the Conclusions of Law, Findings of Fact, Comprehensive Plan Analysis, or any other section of this Order that may be erroneously designated shall be considered to have been correctly designated. (I.E., If a finding of fact" is erroneously designated as a "Conclusion of Law" herein, it shall be deemed to be a "Finding of Fact" for the purposes of interpretation or review of this Order.

DATED this _____ day of _____, 2000.

BY ORDER OF THE KOOTENAI COUNTY BOARD OF COMMISSIONERS

_____
Richard Panabaker, Chairman

ATTEST:
DANIEL J. ENGLISH, Clerk

_____
Dick Compton, Commissioner

_____
By: Deputy Clerk

OPPOSED:

_____
Ronald D. Rankin, Commissioner

WALL STREET JOURNAL
February 22, 2000

GE Finds Way to Save Natural Gas Required In Making Electricity

By a Wall Street Journal Staff Reporter

NEW YORK—General Electric Co. said it achieved a breakthrough in the design of new natural-gas-powered generating plants that clears the way for the production of electricity using less fuel than present systems.

The new plant design, called the H System, relies on steam, rather than air, to cool the huge fan blades that generate electricity. That allows the blades to grow hotter and generate more power more efficiently, a technology similar to one developed for aircraft engines, GE said.

The design uses 5.3% less fuel than current technologies, and is 60% efficient, compared with the 32% to 40% efficiency of typical coal, gas and oil plants.

The technology will have its first commercial installation at a Sithe Energies Inc. 750-megawatt-capacity power plant in Scriba, N.Y., where it is scheduled to go in line in 2002, after testing. GE plans to install a foreign version of the turbine in South Wales, United Kingdom, in 2002.

The U.S. Department of Energy has earmarked $100 million toward the project, along with $200 million invested by GE in the H System and another $300 million in related technology development, Energy Secretary Bill Richardson said.

Speaking in Greenville, S.C., Mr. Richardson predicted natural-gas turbines will make up more than 80% of the power-generating capacity to be added in the U.S. in the next 15 years. The global market could approach $100 billion in 10 years, he said. He praised the cleanliness of the new turbine, saying it would cut by half the nitrogen oxide emission level of turbines now in use. "The H System also will produce the fewest tons of carbon dioxide per kilowatt of electricity of any gas turbine available today," he said.

NEW YORK TIMES
February 18, 2000

G.E. Achieves Breakthrough In Gas Power-Turbine Design

By MATTHEW L. WALD

WASHINGTON, Feb. 17 — The Energy Department and General Electric will announce on Friday a major breakthrough in natural-gas-powered generating plants that will result in production of electricity using 5.3 percent less fuel than the best current technologies.

While that percentage may seem small, it is enormous by the standards of an industry in which technologies often compete on the basis of fractions of a percentage point.

The Energy Department is labeling the breakthrough "the four-minute mile for electric plants."

The result, experts say, will be cheaper production of electricity and a significant reduction in gases thought to cause global warming.

The new plant achieves 60 percent efficiency, a significant improvement over the 32 percent to 40 percent efficiency of typical coal, gas and oil plants in use today. Most of today's generating plants were built in the mid-1900's.

Michehl R. Gent, president of the North American Electric Reliability Council said nearly all plants now being added run on natural gas, meaning that as overall capacity grows and as old plants are replaced with new ones, average efficiency of the system will rise sharply.

Henry Linden, director of the energy and power center at the Illinois Institute of Technology and former president of the Gas Research Institute, said the introduction of high-efficiency gas plants "is revolutionizing the global power business."

As for cutting the emission of "greenhouse gases," Mr. Linden said that if the United States were to retire all its coal plants and replace them with 60-percent-efficient natural gas plants, the nation would meet two-thirds of its commitment under the Kyoto accords.

The generator, which G.E. calls the H System, produces far less smog-causing nitrogen oxides than coal plants and some existing natural gas plants.

The gain comes from tricks of engineering and metallurgy. The jet engine, for example, runs at temperatures above the melting point of the metal used to capture energy from the burning gases. Earlier efforts used air to cool the metal, but this air cuts efficiency.

The new G.E. system uses steam instead, circulating it through serpentine channels inside the vanes and blades that direct combustion gases. The steam is then recaptured to make yet more electricity.

Ordinary turbine blades are made of metal that is formed by millions of tiny crystals; under stress, the blades can break at the boundaries between crystals. The H System blades are giant, single crystals.

In remarks to be delivered Friday, Energy Secretary Bill Richardson calls the new plant "nothing less than the future of electric power generation for this country and for most of the world."

He adds, "Pardon me for crowing."

The department put $100 million into research and development for the new design; General Electric says it spent another $200 million.

The system produces a kilowatt-hour of electricity — an amount of power that will keep 10 100-watt bulbs burning for an hour — on 5,685 British thermal units, or B.T.U.'s, of gas, compared with 5,990 B.T.U.'s for older gas systems.

A good coal plant uses nearly 10,000 B.T.U.'s to produce the same amount of electricity.

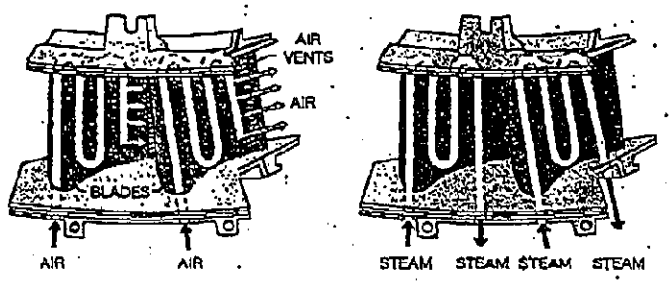
The difference may come to only one- or two-tenths of a cent per kilowatt hour, not enough for a residential customer to feel, but important for some industries. At current natural gas prices, moving from 57 percent efficiency, the current standard, to 60 percent efficiency would save about $20 million over the 20-year life of a 400-megawatt power plant. But beyond the dollar savings, the development also means less carbon dioxide, the main gas thought to aggravate global climate change.

A New Way to Handle Hot Air

A new technology makes gas-powered turbines more efficient by using a different cooling system for the spinning blades.

THE PROBLEM

Gas-fired electric power plants burn natural gas to create a hot exhaust that blows across turbine blades to make them spin. But the exhaust is so hot that it would melt the blades if they were not cooled.



CURRENT SYSTEM

Cool air circulates inside the blades as they spin, exiting through openings on the sides. But this cooler air mingles with the hot gas blowing across the blades, reducing the heat — and consequently the spin and amount of energy produced.

NEW SYSTEM

Steam is sent through closed circuits in the blades. Since the steam is not released, it does not cool down the gas passing over the blades. And as the steam heats up, it is used to run a secondary generator, producing additional energy.

Source: G.E. Power Systems

The New York Times

INTERNATIONAL HERALD TRIBUNE
February 19, 2000

GE Cuts Cost Of Generating Electricity

New York Times Service

WASHINGTON — The Energy Department and General Electric Co. were set to announce Friday a major breakthrough in natural-gas-powered generating plants that will result in production of electricity using 5.3 percent less fuel than the best current technologies.

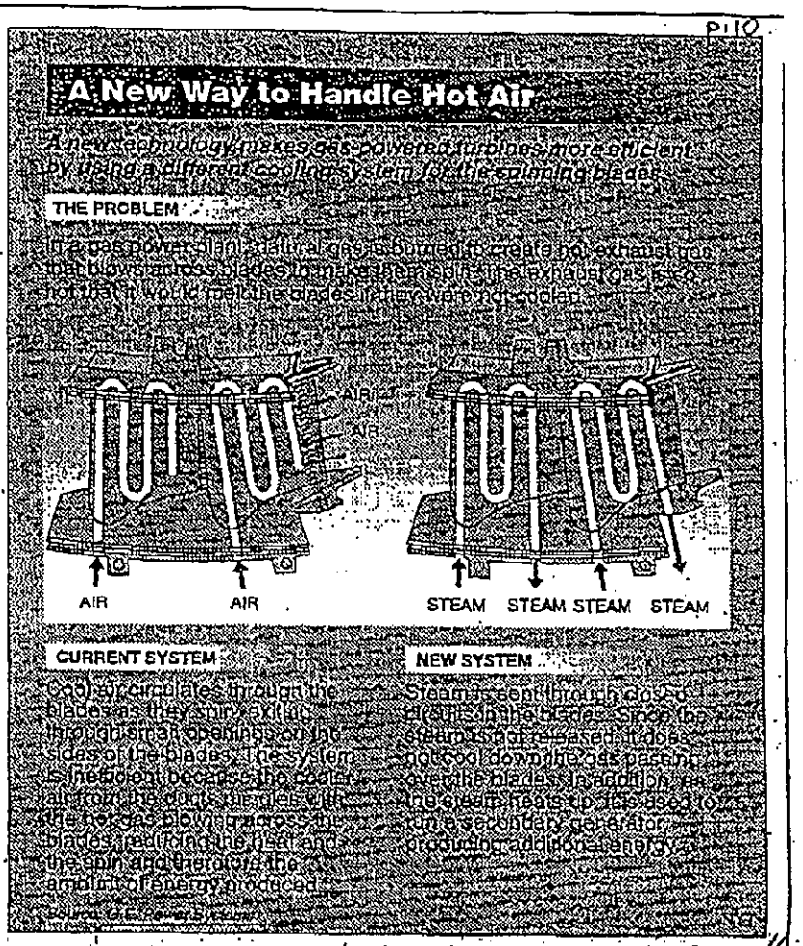
While that percentage may seem small, it is enormous by the standards of an industry in which technologies often compete on the basis of fractions of a percentage point.

The Energy Department is labeling the breakthrough "the four-minute mile for electric plants."

The result, experts say, will be cheaper production of electricity and a significant reduction in gases thought to cause global warming.

Henry Linden, director of the energy and power center at the Illinois Institute of Technology, said the introduction of high-efficiency gas plants "is revolutionizing the global power business."

Energy Secretary Bill Richardson calls the new plant "nothing less than the future of electric power generation for this country and for most of the world."



Project Based on GE's Advanced H System™...

U.K. GOVERNMENT GIVES GE, BP AMOCO FINAL APPROVAL TO BUILD WORLD'S MOST EFFICIENT POWER PLANT IN WALES

SCHENECTADY, NY (July 16, 1999) – GE Power Systems of the U.S. and BP Amoco of the U.K. have received final approval from the British government to construct a 500-megawatt power plant at the Baglan Energy Park in South Wales that will be the world's most efficient gas-fired power station when it enters service in 2002. The project is valued at approximately $500 million.

The new plant will be based on GE's advanced technology *H System™* which is designed to reach 60% fuel efficiency in combined-cycle operation, long considered the "four-minute mile" of the power generation industry. The most efficient combined-cycle power plants currently in operation achieve 57-58% efficiency.

Because fuel represents the largest single cost of running a power plant, an increase of even a single percentage point of efficiency can reduce operating costs by $15-20 million over the life of a typical gas-fired, combined-cycle plant in the 400-500 megawatt range.

The U.K.'s Secretary of State for Trade and Industry, the Right Hon. Stephen Byers, M.P., approved a "Section 36" permit, the final step required for construction to begin. Mr. Byers previously had announced his intent to approve the project pending a

-more-

period of public review in Wales, which has just concluded.

The combined heat and power (CHP) plant will serve the energy needs of existing commercial and industrial facilities within the Baglan Energy Park and support future business expansion at the site. The Baglan Energy Park is a joint initiative of the Welsh Development Agency, Neath Port Talbot County Borough Council and BP Amoco. The power plant project will immediately provide more than 500 construction jobs and will create additional long-term employment opportunities in South Wales.

"The Baglan Energy plant will set global standards for performance, efficiency and emissions control well into the 21st century and will be the showcase of technological excellence for future electricity generation," said Robert L. Nardelli, president and chief executive officer of GE Power Systems. "Using GE's H System, the Baglan plant will offer the lowest cost of electricity production available today from a gas-fired power generation system."

Lawrie Payn, Works General Manager of BP Amoco at the Baglan Bay site, said "This is the green light we have been waiting so anxiously for, and now allows us to move forward and unlock the true potential of Baglan Energy Park. The on-site power generation will not only provide low-cost electricity to park users but is the cleanest combined-cycle gas turbine technology available anywhere in the world."

GE's *H System* combines an H technology gas turbine, a steam turbine and a heat

recovery steam generator into a seamless, combined-cycle system where each component is optimized for the highest level of performance. The use of advanced materials and a new steam cooling system enables the *H System* to operate at higher firing temperatures than other gas turbines, which leads to the higher fuel efficiency.

Another key feature of the *H System* is excellent environmental performance. It burns natural gas, a much cleaner fuel than other fuel options such as oil or coal. In addition, the system's higher efficiency means that less fuel is required to produce the same amount of power, further reducing emissions. Nozzle steam cooling also is used to reduce nitrous oxide (NO_x) emissions. The *H System* will meet or surpass the most stringent environmental regulations in place around the world.

The H technology development program has involved GE Power Systems, GE Aircraft Engines and the GE Corporate Research and Development Center. In addition, key assistance has been provided by the U.S. Department of Energy through its Advanced Turbine System Program, a cooperative industry-government effort.

Although H technology offers many new features, it is based on GE gas turbine technology that has been proven in thousands of applications around the world. For example, GE's fleet of "F" technology gas turbines has surpassed two million hours of commercial service. Since its first gas turbine entered commercial operation in 1949, GE has supplied more than 7,300 gas turbines for power plants around the globe, and is the

-more-

world leader in combined-cycle technology and experience.

GE Power Systems is one of the world's leading suppliers of power generation technology, energy services and management systems. The $9.5 billion GE business serves customers through a global network of offices and services centers, and has the largest installed base of power generation equipment in the energy industry. GE provides turnkey equipment, service and management solutions across several industries, including utilities, independent power producers and industrial/commercial customers.

###

For further information, contact:

Howard Masto or Ken Darling
Masto Public Relations
(518) 786-6488
E-mail: mastopr@thecompany.com

kdreleases/baglanbay

U.S. DEBUT OF "BREAKTHROUGH" ENERGY TECHNOLOGY SLATED FOR UPSTATE NEW YORK PROJECT

OSWEGO, NY (September 16, 1999) – The town of Scriba, New York, will be the site of the most efficient power generation technology in the world, under a plan announced today. The new system is projected to save energy producers and consumers millions of dollars in power plant operation costs.

The plan marks the first use of the new technology in a U.S. power plant, according to representatives of Sithe, project developer, and General Electric (GE), manufacturer of the gas turbine technology. Sithe and GE have joined forces to develop, construct and operate the proposed "Heritage Station," an 800-megawatt (MW), natural gas-fueled power plant planned for Sithe's site in Scriba. The project, with an approximate value of $400 million, will use GE's *H System*™ gas turbine combined cycle technology, which utilizes the most efficient power generation technology in the world to product clean, low-cost electricity.

"Sithe is excited to incorporate this landmark technology into our newest power facility in Scriba," said Barry Sullivan, Sithe vice chairman. "Combining GE's cutting-edge turbine technology with other advanced environmental control systems makes our new plant among the cleanest and most efficient energy facilities in the world."

-more-

"The General Electric *H System* is truly a revolutionary advancement in gas turbine technology," said Delbert Williamson, President of GE Power Systems Global Sales. "It is the most efficient gas turbine system in the world – the first capable of breaking the 60% 'net efficiency' barrier. That means this system uses less fuel to produce the same amount of power, enabling future power plants to produce electricity at less cost while meeting the most stringent environmental regulations in the world. This breakthrough technology was greatly aided by DOE's participation and support. The government made a major commitment to ensure that the United States would remain the global leader in 21st century turbine technology."

The technology will be the culmination of a partnership between GE and the U.S. Department of Energy that began in 1992. With support from the Energy Department's Federal Energy Technology Center, the Oak Ridge (TN) National Laboratory, and a consortium of the nation's top engineering universities, GE brought the advanced turbine technology from a drawing board concept to a full-scale machine that will offer unprecedented power generating efficiencies, affordable costs, and superior environmental performance.

Sullivan called Sithe's Heritage Station facility "the perfect venue" for utilizing the new turbine technology. The planned facility marks an expansion of the company's electricity generating capacity in Scriba, site of Sithe's 1,040 MW "Independence

-more-

Station." Since beginning operations in 1994, Independence Station has been viewed as an industry showcase, hosting business and government leaders from around the globe.

According to Sullivan, featuring GE's new gas turbine technology as part of the new Heritage Station will maintain Upstate New York as a destination site for international energy experts and industry leaders. Additional economic benefits for the region include up to 1,000 union construction jobs as well as new tax revenues. Sithe will initiate the permitting process by submitting a final application to the State of New York this fall. Construction is expected to begin in the last quarter of 2000, with operations and testing projected to commence in the last quarter of 2002.

Sithe is a world leader in producing clean, reliable electricity for energy consumers. Based in New York, Sithe is the leading competitive power company in the northeastern U.S. The company's generation profile consists of 40 operating plants in the northeast totaling over 11,000 MW of capacity.

###

GE Media Contact: Ken Darling
Masto Public Relations (518) 786-6488

Sithe Media Contact: David Turner (315) 343-6002

MODERN POWER SYSTEMS
October 1999

First 7H turbines go to Heritage Station, Scriba

escribed as the "turbine of the 21 century", GE's 7H single shaft, 60 per cent thermal efficiency combined cycle it will make its commercial debut in Sithe Energy's 800 MW Heritage Station at Scriba in New York State.

avid Smith

The GE Frame 7H gas turbine, with steam cooled turbine blades, to be installed at the new Scriba combined cycle plant will be the first commercial applica- of US Department of Energy ATS technol-. It is claimed to be the first system to eed the psychological barrier of 60 per cent mal efficiency.

ited alongside Sithe Energy's showpiece 0 MW Frame 7F based Independence ion, the new $ 500 million project which e and GE have joined forces to develop will nown as the Heritage Station.

he technology is a culmination of the partship between the US gas turbine industry the DoE that began in 1992 and has now e to industrial fruition with support from Energy Department's Federal Energy nology Centre, Oak Ridge National oratory in Tennessee, and a consortium of top US engineering universities.

ecretary of Energy Bill Richardson said, ovations from this programme have al-y improved today's fleet of turbines. Now, new agreement between GE and Sithe ns that we are on the verge of moving an ely new generation of technology into the ket with the promise of even greater envinental and efficiency benefits."

anning permits for the project are due to ubmitted in December 1999, and since the State permit applications process unders completion within 12 months, final per- are expected in December 2000, at the enth hour of the millennium. The first of wo 400 MWe single shaft combined cycle s is scheduled to be on-line at the end of 2 and the second in 2005. No contracts had n placed at the time of writing.

s with the 500 MWe 9H system, the GE 7H been introduced to the market as a single t combined cycle power unit with a pur- built exhaust heat recovery boiler.

he major advances in turbine output and iency mainly derive from the use of closed cycle steam cooling of the turbine blades, very high combustion temperature, incorporation of GE's advanced aircraft engine technology including optimized compressor aerodynamics, single crystal turbine blades and advanced thermal barrier coating processes.

GE Power Systems engineer examines single-crystal and directionally solidified buckets and nozzles, used for high strength at H technology operating conditions

The exhaust heat recovery steam generator will be similar to a typical three pressure level combined cycle boiler, except that a substantial proportion of the cold reheat steam from the HP exhaust system will be diverted into the turbine steam cooling system. The cooling steam, which may amount to as much as 25 per cent of the cold reheat steam, will be returned into the IP section of the condensing steam turbine.

The gas turbine

GE's MS7001H gas turbine contains an 18-stage compressor, a can-annular dry low NO_x (DLN) combustion system, and a fourstage turbine. Closed circuit steam cooling supports the very high combustion temperature of 1427 °C (2600 °F). The Stage 1 and 2 nozzles and buckets plus the Stage 1 shroud are steam cooled. Air cooling is used for the Stage 3 nozzle and bucket with the fourth stage being uncooled.

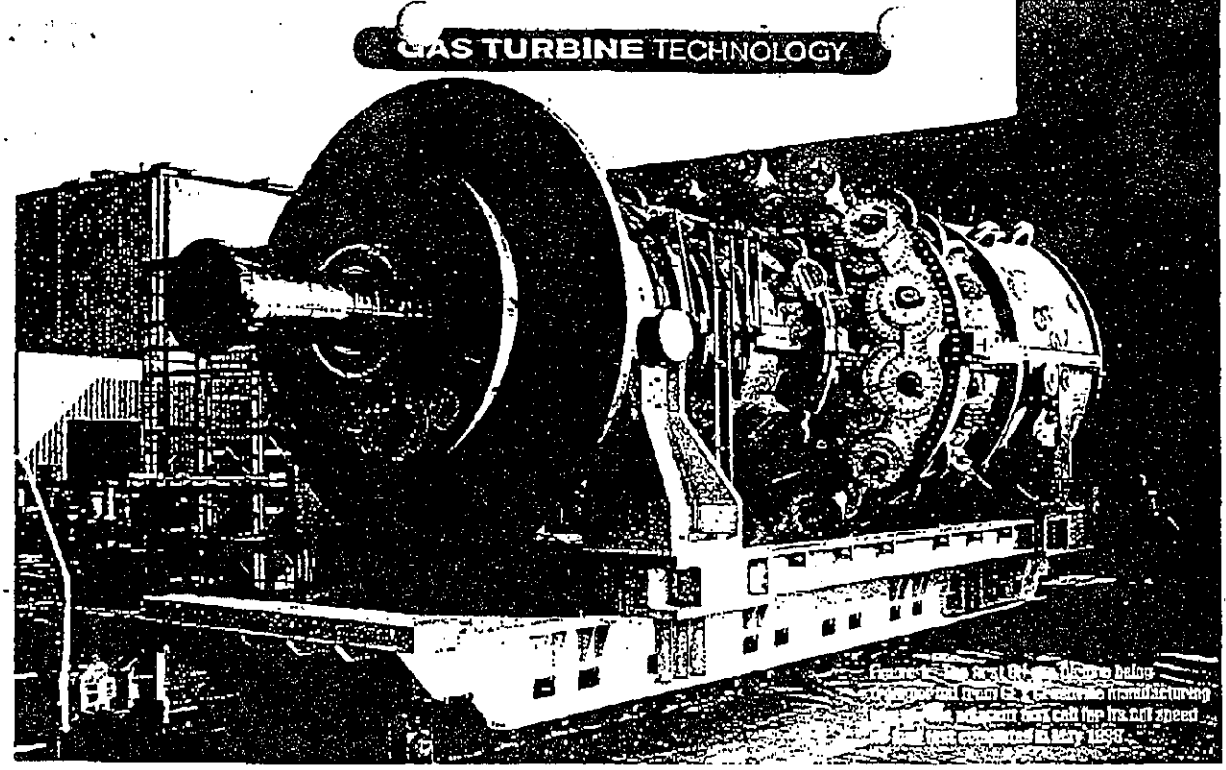
The rotor system is similar to earlier GE gas turbines, being supported by two bearings with the first rotor bending critical above the operating range. Through-bolt rotor construction is continued in both compressor and turbine rotors.

The MS7001H compressor provides a 23:1 pressure ratio with 1230 pps (558 kg/s) mass flow. The H System compressors are derived from GE's high-pressure compressor used in the CF6-80C2 aircraft engine and the LM6000 aeroderivative gas turbine. The CF6-80C2 compressor is scaled up to 2.6:1 for the MS7001H with four stages added to achieve the desired combination of airflow and pressure ratio. On the MS7001H, the last stage from the MS9001H compressor is eliminated and a zero stage added at the front.

The nominal output for the first of the US Department of Energy's ATS (Advanced Turbine System) specification machines will be 400 MWe. All enabling technology for the ATS has been built into the 500 MWe Baglan Bay 9H 50 Hz system, in Wales, UK (see *MPS* May 1999, pp 37 to 42) but the ATS designation applies exclusively to the 60 Hz version. Detailed characteristics of the H System ma-

H System combined cycle plant performance characteristics

	7G	9H
ing temperature (°C)	1430	1430
flow (kg/s)	558	685
mpressor pressure ratio	23	23
ecific work (MW/kg/s)	0.63	0.70
mbined cycle net output (MWe)	350	480
t thermal efficiency (%)	58	60



First H System gas turbine planned for Baglan

The first GE H System 50 Hz steam cooled gas turbine, fully integrated into a single 500 MWe 9H combined cycle chp plant unit is now planned for the old BP Chemicals site at Baglan Bay near Neath in South Wales, UK.

David Smith

The GE H System 50 Hz steam-cooled gas turbine combined cycle power plant to be built in South Wales is the most advanced of next generation gas turbines (Figure 1). It incorporates all the US DOE advanced turbine system (ATS) programme elements on which the 60 Hz 7H machine will be based. It will have a nominal combined cycle output of 480 MWe and a thermal efficiency of over 60 per cent. For further details on this and future DOE programmes, see p45 of this issue.

The steam cooling permits a radical increase in firing temperature while reducing the operating temperature of turbine blading as well as eliminating loss of cooling air flow for traditional turbine blade cooling. Figure 2 shows a cross section of the new turbine and Figure 3 shows the steam cooling schematic.

The original site was the 1000 MWe 9H Fleetwood Power project in Lancashire, England, which was abandoned due to the UK government's *de facto* moratorium on new gas-fired power plants, as also was the Partington project near Manchester which was to have the first 9FA++ gas turbines.

A single 500 MWe 9H combined cycle chp power plant unit is now planned for the old BP Chemicals site at Baglan Bay near Neath. The project will replace a more ambitious 1200 MWe project on the same site - with three 9FA gas turbines plus a single 550 MWe steam turbine – for which Section 36 application was made in December 1996.

Project development

Following the submission of a significantly revised application for the construction of the new 500 MWe power station at the Baglan Energy Park, South Wales, UK Secretary of State for Trade and Industry Stephen Byers confirmed his approval of the application under Section 14 of the Energy Act.

The proposal will now be submitted to the local planing process to secure final consent to trigger development of Baglan Energy Park - a joint initiative by the Welsh Development Agency, Neath Port Talbot County Borough Council and BP Chemicals. Although the proposal flies in the face of issues cited in the UK government's White Paper supporting the 'moratorium' on new gas-fired power plants, it unlikely that further permit applications will be refused.

The notification to Baglan Cogeneration Company Project Manager Ken Allison pointed out that "... certain types of generating stations may, however, have benefits that outweigh the government's concerns about new gas-fired power stations (paragraph 10.41 of the white paper)."

The government's determination to promote chp technology is well known, but the notification stresses the desperate lack of employment in the area which started with the closure of coal mines in the area.

"The Secretary of State has noted that the Neath/Port Talbot area is in a proposed European Union Objective 1 area for the purpose of eligibility for EU Structural Funds grants. It suffers a relatively high unemployment rate and the area has been historically dependent on ageing industries which are fast disappearing." Employment in manufacturing in the region has fallen by 59 per cent since 1980 compared with 27 per cent in Wales as a whole.

Some 2800 jobs will be lost this year. The Pembroke 2000 MWe oil-fired power station, which was closed down after it was denied a licence to burn orimulsion, was a major employer, and the loss of this facility has resulted in a power supply deficit in the area.

Also, the BP Chemicals plant producing styrene and isopropanol, a major employer in the area in the 1970's, is now running down and moving production to its east coast and Grangemouth complexes using natural gas feedstock from the North Sea instead of Welsh coal. It is increasingly becoming a brown field site on which Baglan Energy Park is to be built.

nated and a zero stage added at the front.

The H compressors have four stages of variable stator vanes (VSV) at the front of the compressor. They are used, in conjunction with the IGV, to control compressor airflow during turndown as well as optimise operation for variations in ambient temperature.

The H can-annular combustor is a lean premix DLN system similar to current GE systems. Fourteen cans are used on the MS9001H and 12 cans on the MS7001H. The combustion system is a reverse-flow type, with double wall construction with impingement sleeves surrounding the transition ducts and combustion liners. These sleeves provide impingement and convective cooling of the liners and transition pieces, using compressor discharge air. The DLN technology was developed for and proven on the F class machines.

A four-stage turbine is used for compatibility with the compressor 23:1 pressure ratio. Previous GE gas turbines have operated successfully with three turbine stages. However, with the increase in pressure ratio, three turbine stages would have increased the loading on each stage causing reduced stage efficiency. By using four stages, the H turbine is able to achieve optimum work loading on each stage and high turbine efficiency.

The turbine uses closed-loop steam cooling of Stage 1 and 2 nozzles and buckets plus Stage 1 shroud (see Figure 5). Steam from the combined-cycle steam system is introduced into the turbine components, provides cooling, and is returned to the steam bottoming cycle for work extraction in the steam turbine. Air cooling is used for the Stage 3 nozzle and bucket with the fourth stage being uncooled.

In operation, the turbine will be taken up to approximately 10 per cent load on air-cooled blades, and then switched over from air cooling to steam cooling.

A single crystal material with thermal barrier coating (TBC) is used for both the Stage 1 nozzle and bucket. The single crystal alloy is a nickel-based cast superalloy possessing excellent high temperature properties which was developed and patented by GE. It has been used by GE Aircraft in full scale production since 1988. Stages 2 to 4 rotating blades utilise a directionally solidified material used in GE's F gas turbines today. Stage 2 is also thermal barrier coated. Stages 2 through 4 stationary blade materials are also used in GE's gas turbines and aircraft engines. Stages 2 and 3 are also thermal barrier coated.

No steam or water injection is used for NO_x reduction, since single figure NO_x – 9 ppm, has already been demonstrated with the GE DLN combustors in the F and FA marque.

Nominal output for the 50 Hz 9H is 480 MWe, compared to 400 MWe of the 60 Hz 7H, which will be the first of the US Department of Energy's ATS specification machines. All enabling technology for the ATS has been built into the Baglan Bay 9H, but the ATS designation applies exclusively to the 60 Hz version. Favourable site ambient conditions are cited as the reason for increased output of 50 MWe at Baglan Bay. Detailed characteristics of the H System machines were first published in the June 1995 issue of *Modern Power Systems*.

Test programme

It is, of course, not possible to test a new turbine of some 500 MWe output on a factory test-bed using a dynamometer, the first test operation of any GE H System turbine will be the Baglan Bay combined cycle chp unit.

The first running up and operation of the Baglan Bay machine took place during no-load testing at GE's Greenville facility from April to June 1998. Currently the machine is being stripped down for extensive inspection and analysis before rebuilding for delivery to the site. The machine will be very highly instrumented and the first year of test operation on power will be critical to both H System development and the ATS programme.

Baseline compressor test results

A baseline compressor rig was used to validate the fundamental design approach of using the CF6-80C2 derived compressor in heavy duty gas turbine operation during 1995. Test objectives included validation of performance, power turndown operability, stall margin and aeromechanics. The rig was tested for over 200 hours. Nearly 600 data points were recorded verifying the design approach by meeting all test objectives.

Table 1.

H System combined cycle plant performance characteristics

	7FA	7G	7H	9H
Firing temperature (°C)	1300	1430	1430	1430
Air flow (kg/s)	442	558	558	685
Compressor pressure ratio	15	23	23	23
Specific work (MW/kg/s)	0.57	0.63	0.72	0.70
Combined cycle net output (MWe)	253	350	400	480
Net thermal efficiency (%)	55	58	60	60
NOx (ppmvd at 15% O_2)	9	25	9	9

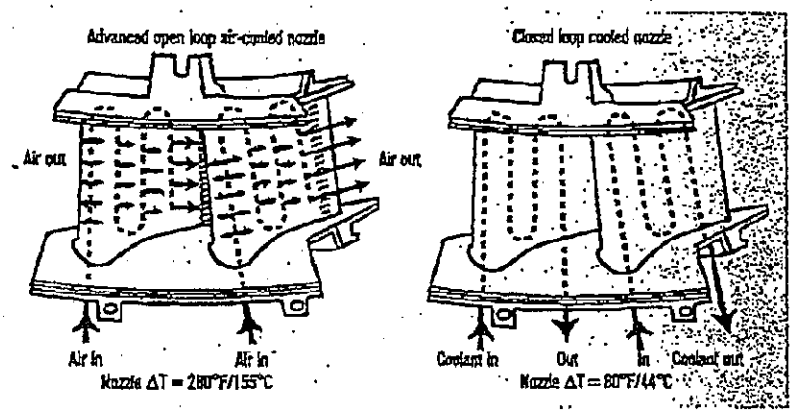


Figure 6. The impact of Stage 2 nozzle cooling

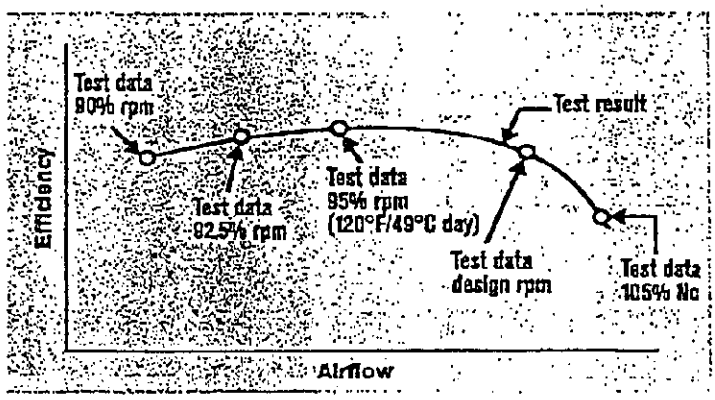


Figure 8. Baseline compressor efficiency confirms pre-test prediction

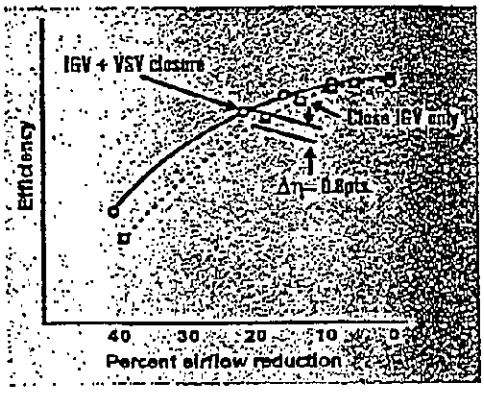


Figure 7. Baseline compressor turndown efficiency vs flow